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LAND POTENTIAL STUDY
VANCE COUNTY

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LAND POTENTIAL STUDY



VANCE COUNTY N.C.



LAND POTENTIAL STUDY



VANCE COUNTY N. C.

The preparation of this report was financially aided through a Federal grant from the Department of Housing and Urban Development under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

PREPARED FOR
COUNTY OF VANCE, NORTH CAROLINA

BOARD OF COMMISSIONERS

T. W. Ellis, Jr., Chairman
John E. Wilson
J. D. Wilson
J. L. Roberson
Arthur B. Crocker

PREPARED BY
THE VANCE COUNTY PLANNING BOARD

J. W. Jenkins, Jr., Chairman
J. C. Cooper
I. J. Jackson
Leon G. Frazier
Joseph O. Braswell

Technical Assistance for the Preparation of This Report By:

NORTH CAROLINA DEPARTMENT OF CONSERVATION AND DEVELOPMENT
DIVISION OF COMMUNITY PLANNING

George J. Monaghan - Administrator
James A. Ferguson - Director, Eastern Area Office
Timothy Wood - Project Planner

JULY, 1967

PRICE: \$1.00

1052233

ACKNOWLEDGEMENTS

The Vance County Planning Board gratefully acknowledges the assistance of many people in providing data for this report. In addition to furnishing data the officials and agencies listed below were kind enough to review certain sections of this report prior to publication.

<u>Name</u>	<u>Agency</u>
Mr. Eldon Allen	Geologist, Division of Mineral Resources, Department of Conservation and Development
Mr. Jack Coss	City Manager, Henderson, N. C.
Mr. Lindsay Hunt	Soil Scientist, Soil Conservation Service, USDA
Mr. Harry Peek	Chief, Ground Water Division, N. C. Department of Water Resources
Mr. Bill Reavis	Area Conservationist, SCS, Vance County
Mr. Harry Simmons	Agricultural Extension Agent, Vance County
Mr. Forrest Steele	State Soil Scientist, Soil Conservation Service, USDA
Mr. Howard Stewart	Manager, Kerr Reservoir Development Commission
Mr. Bruce Strickland	Regional Representative, Division of Commerce and Industry, Department of Conservation and Development
Mr. Julian Taylor	Chemist, N. C. State Stream Sanitation Committee
Mr. Virgil Watkins	Service Forester, Division of Forestry, Department of Conservation and Development
Mrs. Emily Whitten	County Auditor, Vance County
Mr. William Wilson	Geologist, Division of Mineral Resources, Department of Conservation and Development

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INTRODUCTION

The purpose of the Land Potential Study is to examine the physical characteristics of Vance County that will either encourage or inhibit the growth of the county in terms of urban development, population, income, industrial development and agriculture. The Land Potential Study provides a research tool for the Vance County Planning Board, the County Board of Commissioners, and other interested agencies as they plan for the future of the county.

The problems facing Vance County are typical of those facing North Carolina counties. The need for governmental services continues to increase as local governmental units come to grips with the complex and expensive needs of the population for water and sewerage systems, education, health services, and for the welfare of the poor. The urban dweller is particularly concerned with pollution, crime, recreation needs, and other problems associated with high density areas. Rural citizens share some of these problems and are additionally concerned about the migration of their young citizens to urban areas. The rural segment of the population feel that they too have a right to good educational facilities, good roads, recreational areas, and other amenities demanded by the urban population. At an increasing rate the rural population is demanding services from county governmental units that have previously been provided only by municipal governments. The dilemma of county officials is how to provide these services to people scattered over wide areas with the limited funds available.

Additional governmental services can only be provided by increasing revenue. One method of increasing revenue is to attract industrial enterprises to Vance County.

Attracting industry to previously rural areas not only provides employment, it broadens the tax base and may, in the long run, provide some tax relief to the rural landowner. However, an important consideration often overlooked by areas seeking industry is that industry itself makes demands upon local government services. For example, certain types of industry require large amounts of water, the facilities for which may have to be provided by local government. Large users of water may discharge quantities of polluted water and waste which create problems for a large area unless adequately treated in an approved treatment facility.

It is the desire of the Planning Board to provide a realistic appraisal of the county - its assets and liabilities, and its attractions and drawbacks, in order to determine what future urban and rural land use patterns may be expected in Vance County. The material gathered for this study was derived from a number of sources. The data analysis and conclusions represent the opinions of the Vance County Planning Board. The Land Potential Study is part of a comprehensive planning program for Vance County. The first planning study, The Population and Economy of Vance County has been completed. Copies of the study may be obtained from the office of the Vance County Auditor in the courthouse. Other studies scheduled for 1967 include:

Community Facilities Plan
Land Development Plan
Zoning Ordinance

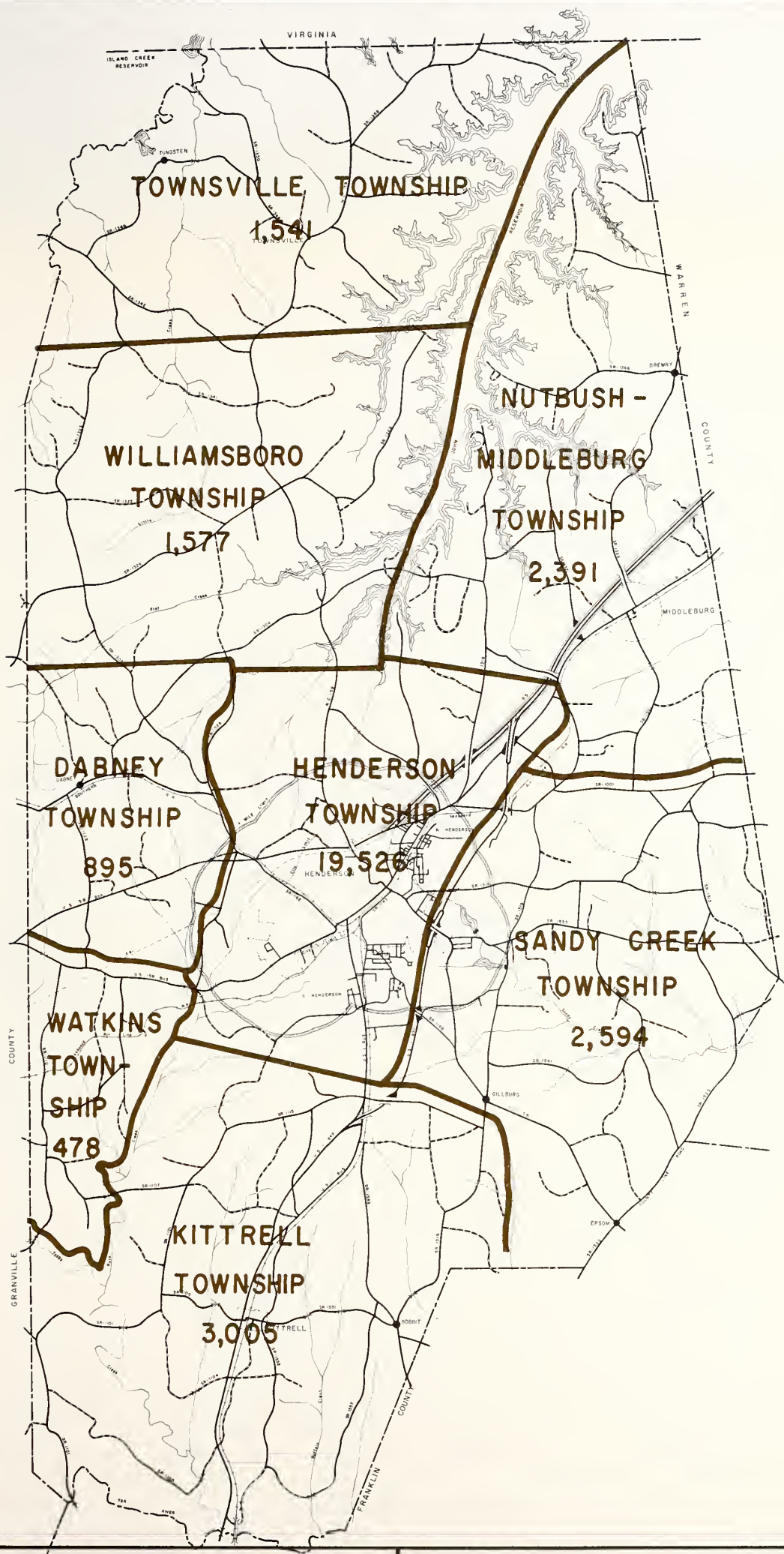
CHAPTER 1

REGIONAL GEOGRAPHY AND LOCATION

Vance County is located in north-central North Carolina with its northern boundary resting against the State of Virginia and the southern tip bordering Franklin County. It is only forty-three miles from Henderson, the county seat, to the state capital of Raleigh.

Vance is a relatively small county of 269 square miles, but possessing varied topography. It is classified as a Piedmont county and the topography varies from almost level to hilly and broken. The most level areas in the county are to be found adjacent to the Seaboard Airline Railroad from Kittrell to the Warren County line, along the Southern Railway branch line between Henderson and the Granville County line, and in the vicinity of Henderson. Most of the steep and hilly countryside is to be found along the Tar River, numerous creeks, and in the northwestern section of the county.

The population, estimated to be 31,346 in 1965, resides in eight townships which contain only three incorporated municipalities: Henderson, Middleburg and Kittrell. The seven predominantly rural townships have populations ranging from less than 500 to approximately 3,000. The heart of Vance County in terms of population, industry and finance is embedded in the city and township of Henderson. Fortunately, Henderson is centrally located in the county. A county map showing township boundaries and 1960 population is shown in Map 1.



VANCE COUNTY TOWNSHIPS

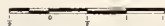
1960 POPULATION

MAP No. 1

VANCE COUNTY NORTH CAROLINA

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Regional Location

The regional setting of Vance County as shown on Map 2 indicates that thirteen North Carolina counties and five Virginia counties are within a fifty mile radius of Vance County. These counties together with their 1960 population are listed in Table 1 below.

TABLE 1
NORTH CAROLINA AND VIRGINIA COUNTIES
WITHIN 50 MILES RADIUS OF VANCE COUNTY

<u>County</u>	<u>1960 Population</u>	<u>County</u>	<u>1960 Population</u>
Alamance, N. C.	85,674	Vance, N. C.	32,002
Caswell, N. C.	19,912	Wake, N. C.	169,082
Durham, N. C.	111,995	Warren, N. C.	19,652
Edgecombe, N. C.	54,226	Wilson, N. C.	57,716
Franklin, N. C.	28,755	Brunswick, Va.	17,779
Granville, N. C.	33,110	Greensville, Va.	16,155
Halifax, N. C.	58,956	Halifax, Va.	33,637
Nash, N. C.	61,002	Mecklenburg, Va.	31,428
Orange, N. C.	42,970	Pittsylvania, Va.	<u>58,296</u>
Person, N. C.	26,394	TOTAL	606,684

North Carolina and Virginia counties in the region have nine cities with populations in excess of 10,000. These cities together with their 1960 populations include:

Burlington	33,199	Roanoke Rapids	13,320
Chapel Hill	12,573	Rocky Mount	32,147
Durham	78,302	Wilson	28,753
Henderson	12,740	Danville, Va.	<u>46,577</u>
Raleigh	93,931	TOTAL	351,542

Vance County is no more than one day's drive from the major population centers of North Carolina. Map 3 shows the location of some major population centers in North Carolina and Virginia and the distances of these towns from Henderson.

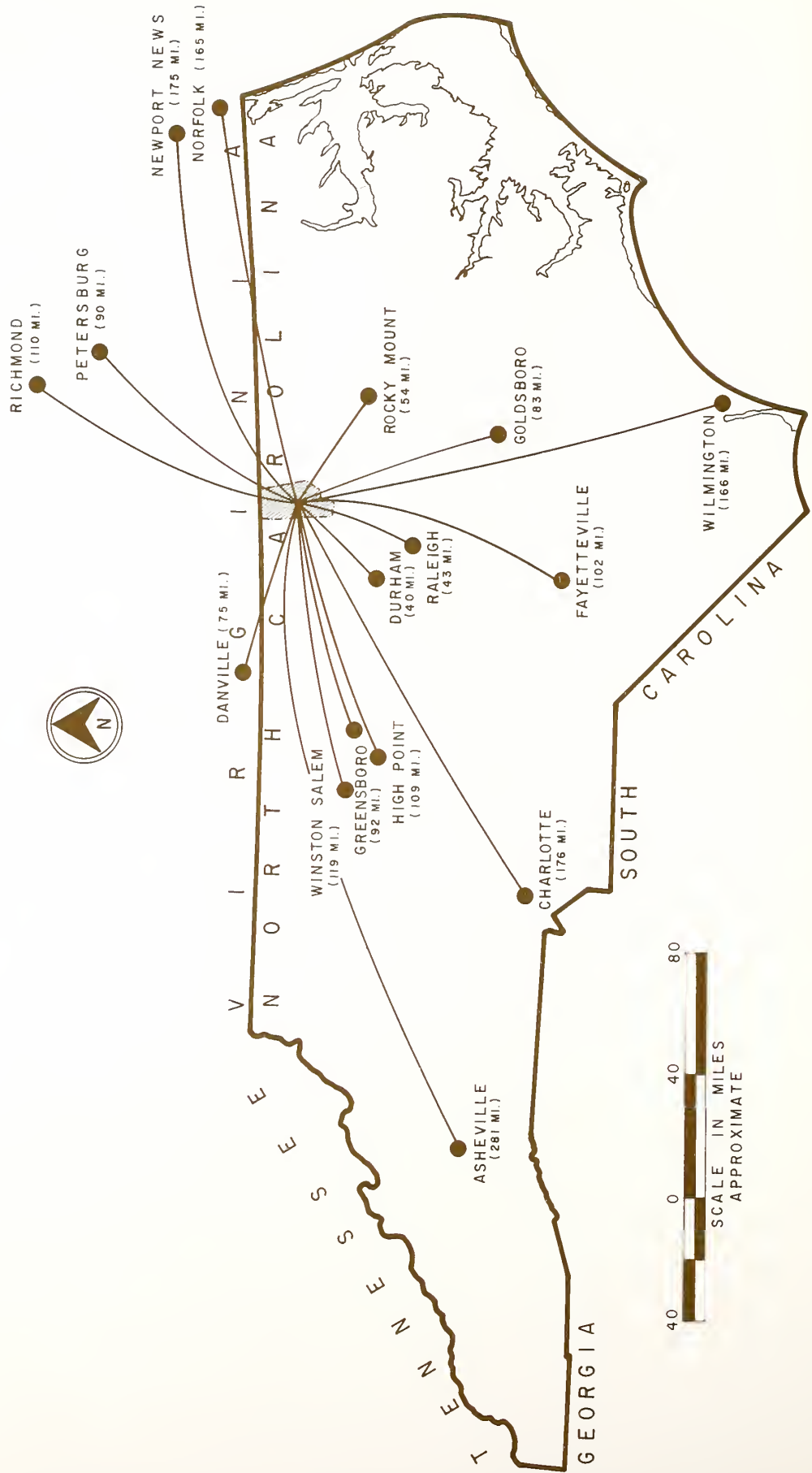
VANCE COUNTY REGIONAL SETTING

MAP 2



DISTANCE TO MAJOR CITIES IN NORTH CAROLINA & VIRGINIA

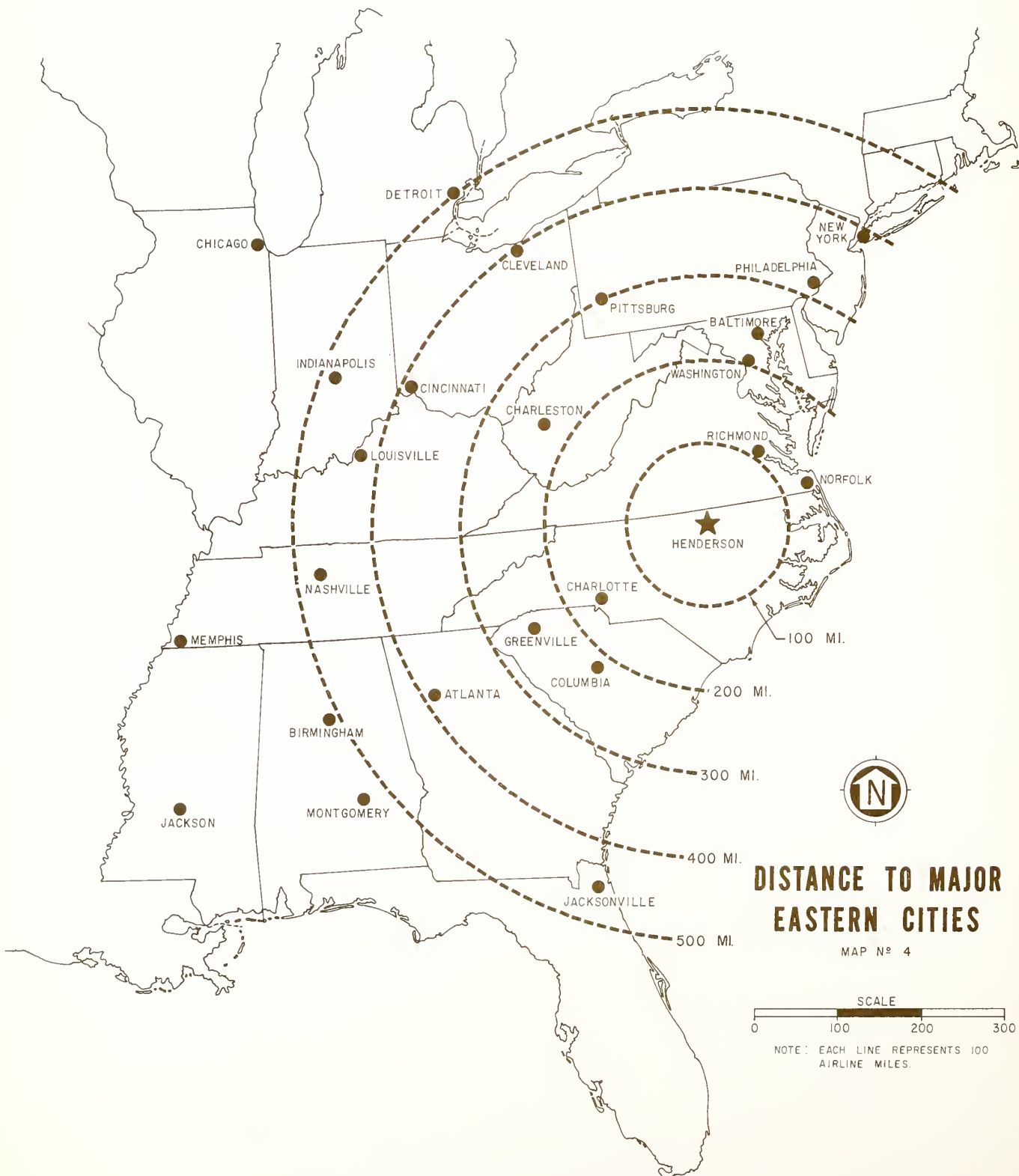
MAP 3



The regional area is a miniature composite of the State of North Carolina. It is part Piedmont, and part Coastal Plain. Some counties are predominantly urban while others are predominantly urban while others are predominantly rural. Some of the counties are experiencing rapid population gain while others are losing population. All of the counties in the region are seeking to attract industry with varying degrees of success. With the exception of a few major urban areas with diversified economies the economy is heavily dependent on textiles and tobacco.

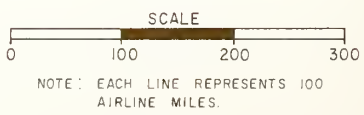
Map 4 shows the location of Vance County with respect to the eastern portion of the United States. Most of the major metropolitan areas in the eastern section of the United States are within 500 airline miles of Vance County. These cities can be served by truck lines in one to two days from Henderson.

In summation, Vance County is conveniently located with respect to population centers in the region, the State, and the Eastern United States. Within fifty miles of Vance County there are eighteen counties with combined population in excess of 600,000 and containing nine cities with populations over 10,000. With the exception of Asheville, all of North Carolina's urban centers are within 200 miles of Vance County as are those of Virginia. The northeast section of the United States with its high population density is readily accessible from Vance County. The southeastern states with their expanding populations and growing industrial complexes are equally accessible.



DISTANCE TO MAJOR EASTERN CITIES

MAP N° 4



CHAPTER 2

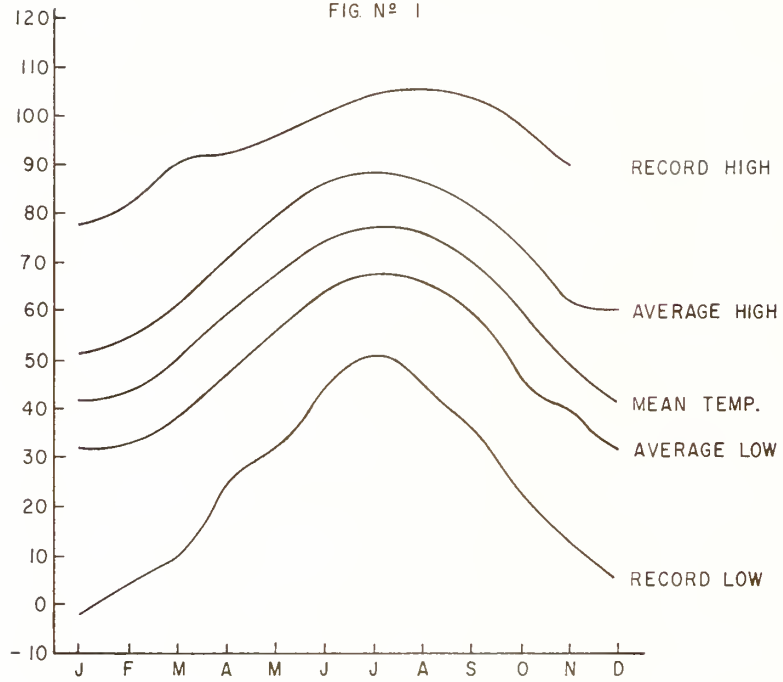
CLIMATE

The climate of Vance County is mainly determined by its position in temperate latitudes and is distinctly modified by the Appalachian mountains on the northwest and by the Atlantic Ocean on the east and south. The mountain barrier at a distance of approximately 110 miles, affords protection from cold winter outbreaks from the northwest; minor outbreaks of cool air moving southeastward from the Great Plains tend to be turned aside by this barrier, while the stronger movements of cold air are modified in crossing the mountains. The coldest weather is most likely to come from the north-northeast; cold air from more easterly directions is tempered by the Atlantic Ocean. The inland waters of Vance County tend to limit extremes of temperature to a small extent. The temperature drops below freezing on an average of more than half the days of winter, but usually rises above the freezing point in the afternoons.

In the winter months some snow can be expected. The average annual snowfall in Vance County is approximately 7.5 inches of snow and sleet combined. Individual snows are of small quantity and seldom exceed more than one to two inches. These snows generally remain on the ground for no more than two days. Snow accumulation on the ground has exceeded twelve inches only once in the past thirty years. The average length of the frost-free growing season is approximately 200 days. The average date of last occurrence in the spring of a temperature as low as 32 degrees is April 9. The average date of first occurrence in autumn of 32 degrees is October 28. The chance of having a freeze after the third week in April or before the second week in October is only about one in ten.

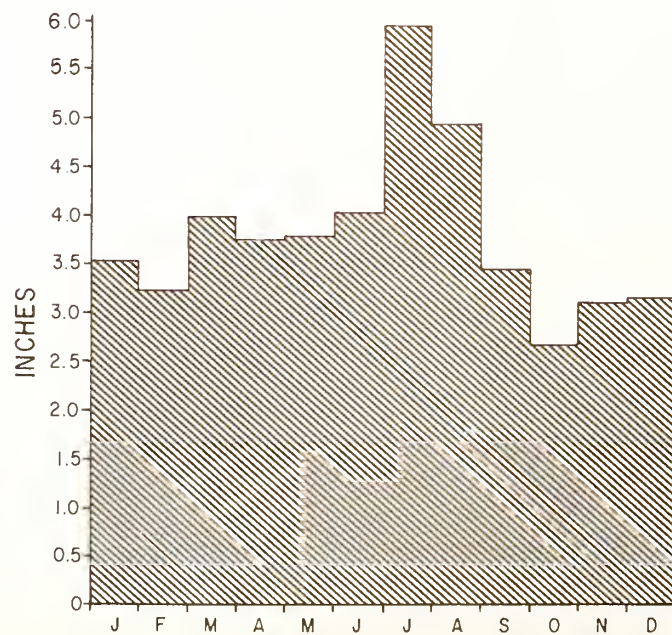
TEMPERATURE DATA **VANCE COUNTY AREA** (OXFORD STATION)

FIG. N° 1



AVERAGE **PRECIPITATION**

FIG. N° 2



Summer days are warm in Vance County, but nights cool rapidly, so that the early morning temperatures average below 68 degrees even at the hottest time of the year. Daytime heat is rarely extreme and temperatures of 100 degrees are rare. They have been recorded in June, July, August and September, but several years may pass without any 100 degree weather. A temperature data summary for the Vance County area is shown in Figure 1 below.

Precipitation is usually adequate and well distributed throughout the year. The driest months of the year are October and November, while the heaviest rainfall occurs in June, July and August. The winter months each average between three and four inches of rain or melted snow. Most winter precipitation comes as a result of moving low pressure storms, while summer rainfall is mainly the result of thundershowers. Autumn rainfall is sometimes increased by the movement of a tropical storm through the eastern part of the State or offshore waters, but the passage of such a storm near enough to Vance County to cause damaging winds is rare. Figure 2 presents a summary of precipitation in Vance County.

Prevailing winds in Vance County are from the southwest in spring and summer, northeast in autumn, and west to northwest in winter. The average wind velocity at the earth's surface is approximately eight miles per hour. The sun shines about sixty percent of the daylight hours, ranging from thirty percent in the winter to almost eighty percent of the time in late spring and early summer. Relative humidity averages about seventy percent with the highest humidities occurring in the late summer and the lowest in spring.

CHAPTER 3
THE GEOLOGY AND MINERAL RESOURCES OF VANCE COUNTY

The type and structure of rocks underlying Vance County are of major importance in determining the uses that can be made of the land surface. Since the geological structure determines topography, the geology affects the patterns of settlement, transportation routes and type of agriculture.

The engineer is concerned with the various properties of rock such as its structural fabric, its porosity, permeability, and its stability. Knowledge of the geologic structure is also important when seeking adequate ground water supplies. Much of the material presented in the section of this report concerning ground water was based on a thorough study of the geology of the area.

A very generalized geologic map of Vance County is shown in Map 5. There are three major rock groupings of the Paleozoic Era which are briefly described below:^{1/}

1. Paleozoic Granite Intrusives

These include granite, diorite, gabbro, and some syenite.

2. Paleozoic Volcanics

Comprised of metavolcanic and metasedimentary rocks of the Carolina Slate Belt.

3. Paleozoic and Precambrian

Comprised primarily of gneiss and schist.

The North Carolina Department of Water Resources has prepared a detailed geological report of Vance County, which will be of value to engineers desiring a technical description of geological formations in the county. Engineers involved in the construction of large structures will find it necessary to conduct extensive test borings

^{1/} Source: Geologic map of North Carolina, Jasper L. Stuckey & Stephen G. Conrad, North Carolina Department of Conservation and Development, 1966.



GENERALIZED GEOLOGIC MAP

MAP No 5



MAFIC VOLCANICS



MICA GNEISS



FELSIC VOLCANICS



GRANITE

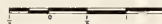


MICA SCHIST

VANCE COUNTY NORTH CAROLINA

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and vibration studies in order to determine the supporting capability of underlying rock formations. It is safe to state that the geological configuration of the area will pose no problems for the builder of large structures with respect to stability of foundations. Construction problems may arise when the topsoil and subsoil are extremely shallow. This may necessitate blasting of foundation areas, septic tank pits and nitrification lines.

Minerals

Vance County was at one time an important mineral producer in North Carolina. In recent years, however, the output and value of mineral production has dropped sharply. A description of known mineral resources follows:

Tungsten

Vance County was the second largest producer of tungsten in the United States until February, 1963 when the Hamme mine near Townsville was closed due to the low price of tungsten. In February, 1963 the quoted price for tungsten in concentrates was \$16.00 per short ton unit. Gold, silver and lead were by-products of the tungsten operations. Spurred by the demands for tungsten caused by the Viet Nam conflict and the increased usage of tungsten carbide studs in snow tires, the consumption of tungsten in the United States in 1966 reached an alltime high of almost 17 million pounds, according to the Bureau of Mines, U. S. Department of the Interior.

The General Services Administration in 1966 released approximately 8 million pounds of tungsten concentrates from its stockpile at prices ranging from \$40.08 per short ton unit (s.t.u.) to \$42.03 per s.t.u. The price of imported tungsten concentrate has risen to approximately \$43.00 s.t.u. (including duty) reflecting the price set by the General Services Administration.

The increased price of tungsten may be grounds for cautious optimism in Vance County. Large quantities of tungsten ores are present in the county in the vicinity of the old mining operations. However, it is obvious to the most casual observer that reopening the mine would involve huge capital expenditure which may not be feasible for the present time. Currently, three companies are accounting for almost all of the U. S. output and import levels are rising rapidly. Approximately 4.3 million pounds of tungsten was imported in 1966 from Canada, Bolivia, Peru, Australia, Portugal, and other countries.

Crushed Granite

The Greystone quarry in Vance County is currently producing crushed granite for riprap, (retaining walls for embankments) roadstone, and railroad ballast. This quarry is one of the best known quarries in the state and records indicate that it has been in operation since 1886. Since it is adjacent to the Seaboard Airline Railroad the quarry is able to serve an area much wider than most granite quarries. If transportation of the quarry output was limited to truck transportation the economical area of distribution would be greatly reduced. The quantity of crushed granite produced is confidential company data and no figures are available for publication.

Sand and Gravel

According to the Bureau of Mines', Minerals Yearbook for 1965, approximately 4,000 ton of sand and gravel was sold or used by producers in Vance County in 1965. This sand and gravel had an estimated value of \$2,000.00.

Lightweight Aggregate

There is currently no production of lightweight aggregate in Vance County. Geologists are of the opinion that a source of lightweight aggregate may be found in Vance County due to the geological structure in certain areas of the county. Extensive drilling and sampling would be required to determine the existence location of lightweight aggregates and feasibility studies would have to be conducted to determine if commercial production would be profitable.

CHAPTER 4

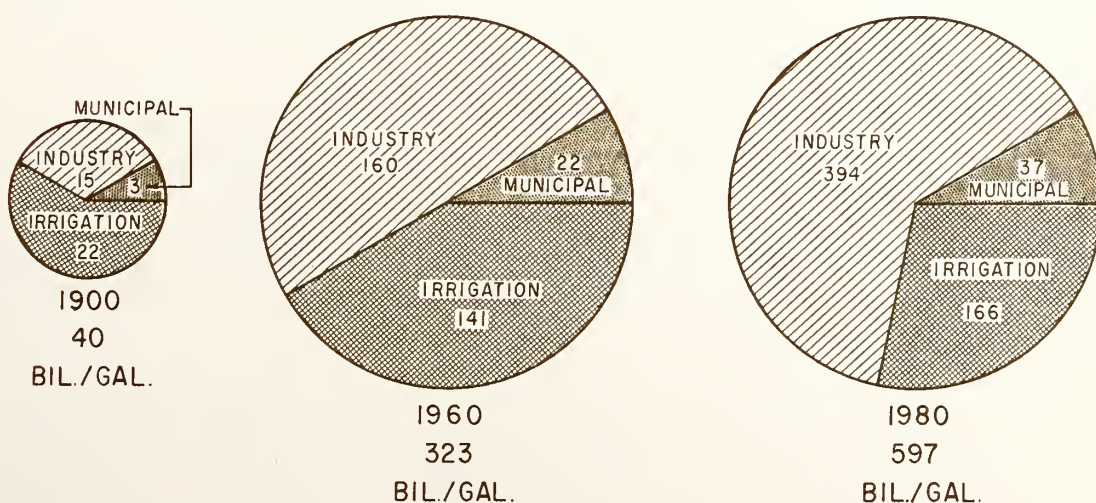
WATER

The citizens of Vance County are conscious of their dependence on water for industry, irrigation, and personal use. They are fortunate in that Vance County possesses an adequate supply of both ground water and surface water. This is a significant factor in the county's potential to support urban growth in future years.

The three major users of water in the United States are industry, municipalities, and agriculture. The demand for water has rapidly increased and will continue to increase. Therefore, adequate water supplies must be available if urban expansion is to take place. Figure 3 shows the increasing demand for water in the United States.^{1/}

MAJOR USERS OF WATER BILLIONS OF GALLONS PER DAY

FIGURE Nº 3



^{1/}Source: National Conference on Water Pollution, 1960, Public Health Service. Publication No. 816.

In the period between 1900 and today each American has more than tripled his daily use of water. Each person in a home equipped with running water uses about 60 gallons per day. In 1950 the daily industrial use of water per capita was 560 gallons. In 1975 industry will be using 1,193 gallons per capita every day.^{1/} Vance County's favorable location with respect to water provides assurance that urban and industrial development will not be deterred due to a shortage of water.

Ground Water

With the exception of Henderson, most of the domestic water supplies in Vance County are obtained from wells. Springs are a source of water for a few homes, and one large spring located four miles southeast of Henderson supplies water for a North Carolina prison camp.

Most domestic water supplies are obtained from dug or bored wells. From a sanitary standpoint dug wells are less desirable than drilled wells as it is hard to provide watertight casings to the necessary depth and the water source is too near the surface. Bored wells, excavated with an auger are also less desirable than drilled wells for the same reasons. Dug and bored wells in the county range in depth from 20 to 50 feet and most of them yield less than 10 gallons per minute (gpm). However, a yield of 1 gpm may be adequate for domestic uses because of the large storage capacity of the wells. Rocks of the mica gneiss unit and metavolcanic sequence are at most places sufficiently weathered to permit construction of dug or bored wells to a few feet below the water table.

Drilled wells are the most satisfactory type from a Sanitary standpoint and wells drilled in granite have the highest average yield (23 gpm). However, there are more wells in granite that yield 1 gpm or less than in any other

^{1/}Background On Water, National Water Institute, 1966.

rock type. About one out of 10 wells in granite falls into this category.

Adequate domestic supplies of water can be obtained from drilled wells at most places in Vance County. Data on wells according to topography and rock structure are shown in Tables 2 and 3.

TABLE 2
SUMMARY OF DATA ON WELLS

<u>According to Topographic Location</u>						
Topographic Location	Number of Wells Sampled	Average Depth (feet)	<u>Yield (gpm)</u>		Per Foot of well	Percent of wells yielding 1 gpm or less
			Range	Average		
Hill	42	136	1-75	12	0.09	4.8
Flat	13	126	1-82	8	.06	7.7
Slope	26	158	$\frac{1}{2}$ -90	14	.09	3.9
Draw	8	112	12-36	18	.16	0

Source: Ground Water Resources Study of the Raleigh Area, N. C.
Department of Water Resources. (To be published in 1967)

TABLE 3
SUMMARY OF DATA ON WELLS

<u>According to Rock Type</u>						
Type of Rock	Number of Wells Sampled	Average Depth (feet)	<u>Yield (gpm)</u>		Per Foot of well	Percent of wells yielding 1 gpm or less
			Range	Average		
Mica gneiss	32	167	1-40	10	0.06	3.1
Metavolcanic sequence	12	105	3-36	12	.11	0
Granodiorite	33	123	$\frac{1}{2}$ -75	11	.09	6.1
Granite	12	140	1-90	23	.16	8.3
All wells	89	139	$\frac{1}{2}$ -90	12	.13	4.5

Source: Ground Water Resources Study of the Raleigh Area, N. C.
Department of Water Resources. (To be published in 1967)

Complete analyses of seven water samples from wells in various parts of Vance County are given in Table 4.^{1/} Ground water in Vance County is principally of the calcium and sodium-bicarbonate type. This water is suitable for most domestic, municipal and industrial uses.

Analysis of one sample from granite and one from mica gneiss indicate that these rocks yield a water that is soft and has a low iron content. Water from granodiorite is generally of good quality although in certain areas it may be moderately hard to hard. Two samples of water from metavolcanic rocks were analyzed and both were very hard.

^{1/}Source: Ground Water Resources Study of the Raleigh Area, N. C.
Department of Water Resources. (To be published in 1967)

TABLE 4

CHEMICAL ANALYSES OF GROUND WATER FROM SEVEN VANCE COUNTY WELLS

(Parts per million)

Wells Sampled	A	B	C	D	E	F	G
Date of Collection	2/6/63	2/13/62	2/13/62	2/13/62	2/13/62	2/13/62	2/13/62
Silica (SiO ₂)	38.00	31.00	40.00	32.00	20.00	23.00	24.00
Aluminum (Al)	.00	.1	.00	.00	.00	.00	.00
Iron (Fe)	.3	.17	.08	.05	.24	.09	9.00
Manganese (Mn)	.00	.00	.00	.04	.00	.00	.03
Calcium (Ca)	3.8	14.00	34.00	51.00	5.4	3.2	63.00
Magnesium (Mg)	1.1	.7	13.00	8.1	.9	1.1	32.00
Sodium (Na)	6.7	4.4	48.00	10.00	9.2	7.6	10.00
Potassium (K)	.3	.6	4.00	5.2	1.6	1.5	1.9
Lithium (Li)	.00	.00	.00	.00	.00	.00	.00
Bicarbonate (HCO ₃)	26.00	37.00	126.00	203.00	10.00	18.00	313.00
Sulfate (SO ₄)	2.2	4.6	22.00	6.4	1.8	5.0	33.00
Chloride (Cl)	4.00	2.00	66.00	6.6	5.6	4.6	7.4
Fluoride (F)	.1	.1	.2	.1	.1	.0	.2
Nitrate (NO ₃)	1.8	4.0	18.00	2.6	24.00	5.5	.3
Phosphate (PO ₄)	.2	.7	.8	.3	.2	.1	.2
Dissolved Solids	71.00	80.00	308.00	222.00	74.00	61.00	326.00
Hardness as CaCO ₃	14.99	38.00	138.00	162.00	17.00	12.00	288.00
Noncarbonate	0.00	7.00	35.00	0.00	9.00	0.00	31.00
Specific Conductance	58.00	110.00	537.00	357.00	96.00	69.00	548.00
pH	6.5	7.3	6.6	7.2	6.1	6.2	6.7
Color	5.00	15.00	5.00	3.00	3.00	3.00	7.00
Map Unit	Granodio-rite	Granodio-rite	Granodio-rite	Meta-volcanic	Granite	Mica Gneiss	Meta-volcanic

Source: N. C. Department of Water Resources, 1966.

Surface Water

Vance County's surface water is provided by the creeks and tributaries of two major rivers, the Tar and the Roanoke. (See Map 6.)

The Tar River flows through Vance County for a distance of approximately five miles on the southern tip of the county. The Tar River Basin extends east from the Granville County line to a point just north of Henderson and then northeast in the direction of Middleburg, leaving the county at a point approximately two miles northeast of Middleburg. Approximately 124 square miles of Vance County lies in the Tar River Basin.

The remainder of the county (145 square miles) lies in the Roanoke River basin although the Roanoke itself does not flow through Vance County. The comprehensive development of the Roanoke River basin by the U. S. Corps of Engineers created the John H. Kerr Reservoir and the Island Creek Reservoir.

Kerr Reservoir was created by the construction of the John H. Kerr Dam on the Roanoke approximately 12 miles north of Norlina, N. C. and 5 miles from the North Carolina-Virginia State line. The reservoir lies partly in North Carolina and partly in Virginia. The Vance County portion of the reservoir follows the course of Nutbush Creek. The Roanoke River basin project was authorized primarily for flood control and the generation of hydro-electric power. The project also provides such important benefits as recreation facilities, fish and wildlife preservation, and low-flow regulation.

The two river basins described above contain adequate supplies of raw water for agricultural and municipal purposes at the present time. Some minor flooding occasionally takes place along the Tar and its tributaries, but due to flood control measures the portion of Vance County in the Roanoke River basin is not subject to flooding.

The city of Henderson currently obtains its raw water supply from three impounding reservoirs: Fox's Pond, Southerland's Pond and Rowland's Pond. These three reservoirs supply raw water to the city filter plant which currently treats approximately 2,275,000 gallons per day. An additional source of raw water is being considered for use in the near future. A referendum will be held in November, 1967 to act upon a Henderson City Council proposal to construct a new filter plant with a 6,000,000 gallon per day capacity utilizing raw water from Kerr Reservoir. Should this referendum pass, the Henderson area will be utilizing water from both the Roanoke and Tar River basins.

Classification of Vance County Surface Water

The surface waters of North Carolina have been classified by the State Stream Sanitation Committee. These classifications are based on existing or contemplated best usage of the various waters in the river basins. Map 6 shows the classification of all the creeks, tributaries, reservoirs and rivers in Vance County. It will be noted that Vance County has an adequate supply of water that may be used as a source of water supply for drinking and cooking uses after certain approved treatment processes (Class A-II). The following description of stream classifications will serve as a guide to the stream classification map shown in Map 6.

Class

A-II

Suitability

Suitable as a source of water supply for drinking, culinary, or food processing purposes after approved treatment equal to coagulation, sedimentation, filtration, and disinfection, and any other usage requiring waters of lower quality.

ClassSuitability

- B. Suitable for outdoor bathing and any other usage requiring waters of lower quality.
- C. Suitable for fishing and fish propagation, and any other usage requiring waters of lower quality.
- D. Suitable for agriculture and for industrial cooling and process water after treatment by the user as may be required under each particular circumstance.

Pollution

Pollution survey reports of the State Stream Sanitation Committee reveal only one serious source of pollution in surface waters.^{1/} Periodic discharge of waste from a pickle plant in Henderson sometimes contains a relatively high concentration of chlorides. The Henderson waste treatment plant on some occasions has been unable to remove sufficient quantities of the chlorides prior to discharging effluent into Nutbush Creek. City authorities and the industry will jointly provide a separate waste treatment facility for the treatment of these wastes. Final plans and specifications are being drawn up for the approval of the State Stream Sanitation Committee.

^{1/} Pollution Survey Report No. 4, Roanoke River Basin, State Stream Sanitation Committee, 1956.

CHAPTER 5

SOILS, AGRICULTURE AND FORESTRY

The Soil Survey Manual defines soil as, "The collection of natural bodies occupying portions of the earth's surface that support plants and that have properties due to the integrated effect of climate and living matter, acting upon parent material, as conditioned by relief, over periods of time.¹" This complex definition indicates that the principle differences in soil occur as a result of:

- A. Climate
- B. Geology
- C. Topography

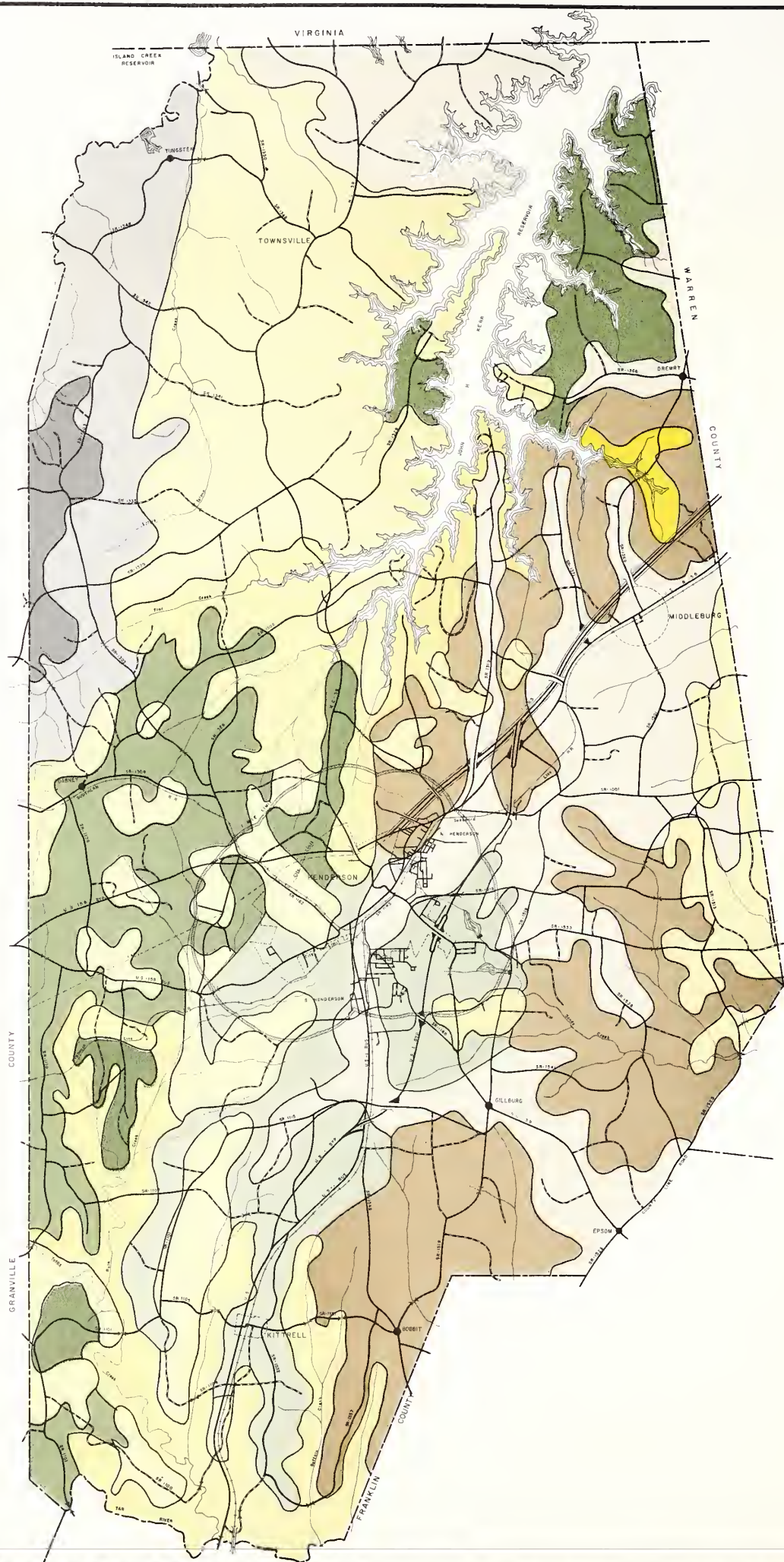
The differences in soils are one determinant of the best use that can and should be made of the land. Improper uses of Vance County land may have disastrous consequences for the property owner. Improper use of the land for farming purposes will inevitably result in low crop yields, small returns on the investment of time and money, and may further deteriorate the condition and capability of the land. The small homeowner may be beset by a myriad of problems such as faulty septic tank operations, an inadequate or polluted water supply, poor drainage, and construction problems if he neglects to investigate the properties of the soil on which he builds his home. Thus, it can be seen that technical considerations of soil properties and capabilities are of interest to all Vance County residents.

In North Carolina about 218 soil series are recognizable which indicates the varying conditions of climate, topography, and geological formations found in the state. Soil scientists have combined individual soil series into soil associations. A soil association

¹ Soil Survey Manual, USDA Handbook #18, 1951.

is a landscape that has distinctive proportional patterns of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern. Map 7 shows the eight soil associations found in Vance County and reflects interpretations by soil scientists of the Soil Conservation Service made from field inspections and previous soil studies. The map is intended to give a general idea of the soils in Vance County and is useful in determining large areas of land that are suitable for certain kinds of farming or for locating large tracts of land having a high percentage of soils suitable for industrial sites, urban development or recreational uses.

The soil associations map is designed for broad, general planning and should not be used for planning farming practices on small tracts of land. Those interested in soil classifications for small areas of land should seek more detailed interpretations from the local soil conservationist.



GENERALIZED SOILS MAP (MAP No. 7)

SOIL ASSOCIATIONS

- CECIL
- WILKES
- APPLING - DURHAM
- APPLING - LOUISBURG
- APPLING - VANCE - LOUISBURG
- VANCE - ENON - HELENA
- ORANGE - HERNDON
- GEORGEVILLE - HERNDON

VANCE COUNTY NORTH CAROLINA

PREPARED BY
DIVISION OF COMMUNITY PLANNING
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A
FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE
DEPARTMENT OF HOUSING & URBAN DEVELOPMENT, UNDER THE URBAN
PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE
HOUSING ACT OF 1954, AS AMENDED.

DATE: 7/66



DESCRIPTIONS OF SOIL ASSOCIATIONS IN
GENERAL SOIL MAP
VANCE COUNTY, NORTH CAROLINA

1. Cecil Association

Gently sloping to moderately steep, well drained soils with sandy loam to clay loam surfaces over firm, red clay subsoils, derived from acidic rock.

This association consists of fairly broad, moderately sloping ridges that break sharply to the drainageways. It makes up about 27 percent of the county with the largest area centering around Williamsboro and Townsville, and other large areas south of Henderson in a northeast-southwest line towards Tar River, and east of Cokesbury along the Warren County line.

Cecil soils are the major soils and make up about 80 percent of the area. They have sandy loam to clay loam surface soils over firm, red clay subsoils. The rest of the association consists of minor acreages of Appling, Vance, Wilkes, Louisburg, Georgeville and Herndon soils.

About 40 percent of this association is in cultivation or pasture, with the remaining chiefly in woods. The soils in this association are suited for the production of small grain, corn, alfalfa, soybeans, lespedeza, tobacco, and pasture. They are easily tilled, unless severely eroded, and respond well to lime and fertilizer. Where cultivated, conservation practices are needed to effectively control the erosion hazard.

The Cecil soils have moderate limitations when used for septic tank filter fields, foundations, for footings, and road construction.

2. Wilkes Association

Gently sloping to steep, well drained, shallow soils with little or no subsoil development, derived from mixed acidic and basic rocks.

This association consists chiefly of shallow soils on rolling to steep topography. It makes up about 14 percent of the county, with one large area northwest of Henderson between Nutbush and Flat Creek, and another large area in the southern part of the county in the watersheds of Ruin, Tabbs, Long and Buffalo Creeks.

The Wilkes soils make up about 65 percent of the association. They have moderately light textured topsoils with little or no subsoil development.

The rest of the association is made up chiefly of Louisburg (similar to Wilkes), Cecil, Appling, Enon and Helena soils. About 85 percent of this association is forested and about 15 percent is cultivated or in pasture.

Most of the soils in this association are not suited or recommended for crops because of the steep topography and the shallowness of the soils. On the smoother slopes within this association some crops are grown, but the majority of this area is in forest and pasture. These soils are very susceptible to erosion and when cultivated adequate conservation practices should be used.

The major soils in this association have severe limitations for septic tank absorption fields, foundations for large buildings and road construction, due to the steepness of slope and the shallow depth of the soil over rock.

3. Appling-Durham Association

Gently sloping to moderately sloping, well drained soils with sandy loam surfaces and yellowish red to yellow firm clay to friable sandy clay loam subsoils, derived from acidic rocks.

This association consists chiefly of broad, smooth ridges on gentle to moderate slopes. It makes up about 17 percent of the county with the largest areas centering around Middleburg, Brookston and Gillburg in the eastern part of the county, and along the Virginia State line in the north central part of the county.

Appling soils make up about 70 percent of the association. They have dark gray to grayish brown sandy loam surfaces and yellowish red to yellowish brown clay loam to clay subsoils.

Durham soils make up about 15 percent of this association. They have dark gray to grayish brown surfaces and strong brown to yellow sandy clay loam to light clay loam subsoils. The rest of this association is made up of minor acreages of Vance, Cecil and Louisburg.

About 75 percent of this association is cultivated or in pasture, and the remainder is forested. The soils in this association are suited for the production of tobacco, corn, cotton, soybeans, lespedeza, small grain, and pasture. They are especially well suited for tobacco. They are easily tilled and respond well to lime and fertilizer. They are susceptible to erosion and conservation practices should be used to effectively control this hazard.

The major soils in this association have only moderate limitations for septic tank absorption fields, foundation footings for large buildings (three stories or less) and for road construction.

Appling-Louisburg Association

Gently sloping to steeply sloping, deep to shallow soils with sandy loam surfaces over firm clay to very friable coarse sandy loam subsoils, derived from acidic rocks.

This association consists of narrow ridges of gentle to moderate slopes with moderately steep side slopes to the major drainageways. It makes up about 14 percent of the county and is in the eastern part, with the largest areas centering around Bobbitt and Weldon's Mill, with smaller areas between Interstate 85 and Kerr Lake.

Appling soils make up about 65 percent of the association. They have dark gray to grayish brown sandy loam surfaces and yellowish red to yellowish brown clay loam to clay subsoils.

Louisburg soils make up about 20 percent of the association. They are shallow to moderately deep and are well to somewhat excessively drained with sandy loam surface layers over light yellowish brown to yellowish red very friable coarse sandy loam subsurface layers. The rest of this association is made up of minor acreages of Vance, Cecil, Durham and other soils.

About 50 percent of this association is in cultivation and pasture, and the remainder is in forest. The chief crops are tobacco, cotton, soybeans and corn. The soils are suited to the production of tobacco, corn, cotton, soybeans, lespedeza, small grain and pasture. The shallow soils (Louisburg) in this association are limited in crop suitability because of droughtiness. The soils are easily tilled and respond well to lime and fertilizer. They are susceptible to erosion and conservation practices should be used to effectively control this hazard.

The major soils (Appling) have only moderate limitation for septic tank absorption fields, foundation footings for

large buildings, and road construction. The shallow soils (Louisburg) have severe limitation for septic tank absorption fields and moderate limitations for buildings and road construction. The shallow depth of the soil to rock is the main limitation in the use of the Louisburg soils.

5. Appling-Vance-Louisburg Association

Gently sloping to steep, well drained, deep to shallow soils with sandy loam surfaces over very firm clay to very friable coarse sandy loam subsoils, derived from acidic and mixed acidic and basic rocks.

This association consists of narrow ridges of gentle to moderate slopes that break rather sharply to drainageways. It makes up about 8 percent of the county. The largest areas begin just south of Henderson and extend to the vicinity of Gill and Kittrell.

Appling soils make up about 50 percent of the association. They have dark gray to grayish brown sandy loam surfaces and yellowish red to yellowish brown clay loam to clay subsoils.

Vance soils make up about 20 percent of the association. They have grayish brown sandy loam surfaces and yellowish brown to strong brown very firm, slowly permeable clay subsoils. Louisburg soils make up about 16 percent of the association. They are shallow to moderately deep soils with sandy loam surfaces over very friable coarse sandy loam subsoils. The rest of the association is made up chiefly of Durham and Cecil soils.

About 50 percent of this association is in cultivation and pasture, and the remainder is in woods. The chief crops here are tobacco, corn, cotton, soybeans, lespedeza, small grain and pasture. The shallow Louisburg soils are somewhat limited in crop suitability because of droughtiness. The

soils in this association are easily tilled and respond well to lime and fertilizer. They are susceptible to erosion and where cultivated, conservation practices should be used to effectively control this hazard.

The major soils (Appling) have only moderate limitations for urban uses. Vance soils have severe limitations for septic fields, foundations for buildings and roads due to their very firm, slowly permeable clay subsoil. Louisburg soils have severe limitations for septic fields and moderate limitations for light industries and roads due to their shallowness to rock.

6. Vance-Enon-Helena Association

Gently sloping to moderately steep, well to moderately well drained soils with sandy loam surfaces over very firm, slowly permeable, clayey subsoils, derived from mixed acidic and basic rocks.

This association consists of fairly broad ridges of gentle to moderate slopes, and strongly sloping side slopes. It makes up about 13 percent of the county, with the largest areas in the northeastern part of the county between Kerr Reservoir and the Warren County line and in the western and southwestern parts of the county in the vicinity of Dabney, Harris Cross Roads and Watkins.

Vance soils make up about 40 percent of the association. They have grayish brown sandy loam surfaces and yellowish brown to strong brown very firm, slowly permeable clay subsoils. Enon soils make up about 25 percent of the association. They have brown sandy loam surfaces and strong brown, very firm, slowly permeable clay subsoils. Helena soils make up about 20 percent of the association. They have light brownish gray sandy loam surfaces and brownish yellow, very plastic, slowly permeable clay subsoils, that are mottled with gray in the lower part. The rest of the association is made up chiefly of Appling, Louisburg, and Wilkes soils.

About 40 percent of this association is in cultivation and pasture and the remainder is in woods. The crops grown are generally tobacco, corn, cotton, small grain, lespedeza and pasture. Because of their slowly permeable subsoils, tillage operations are restricted somewhat after heavy rains. Vance and Helena are the soils most used for tobacco in this association.

The major soils in this association all have severe limitations for septic fields, foundations for buildings, and road construction due to their slowly permeable clayey subsoils.

7. Orange-Herndon Association

Gently sloping to strongly sloping soils with silt loam surfaces and yellowish to yellowish red very firm to firm, silty clay to clay subsoils, derived from "Carolina Slates."

This association consists chiefly of fairly broad ridges of gentle to moderate slopes, with narrow, steeper side slopes breaking to the drainageways. It makes up about 1 percent of the county and is along the Granville County line north and south of Hicks Cross Roads.

Orange soils make up 60 percent of the association. They have silt loam surfaces and yellow to yellowish brown, very plastic, slowly permeable clayey subsoils. Herndon soils make up 30 percent of the association. They have silt loam surfaces and yellowish red to yellowish brown silty clay to clay subsoils. The remainder of the association is made up chiefly of Georgeville and Cecil soils.

About 40 percent of this association is in cultivation or pasture and the remaining is in woods. The crops grown in this association are generally corn, small grain, lespedeza, tobacco and pasture.

The Orange soils have severe limitations for septic fields, foundations for buildings and road construction, due to their very slowly permeable clayey subsoils and Herndon soils have only moderate limitations for the above uses.

8. Georgeville-Herndon Association

Gently sloping to steep, well drained soils with silt loam to silty clay loam surfaces over red to yellowish red, firm silty clay to clay subsoils, derived from "Carolina Slates."

This association consists chiefly of fairly broad ridges of moderate slopes that break rather sharply to the drainageways. It makes up about 6 percent of the county, extending from north of Dabney in a narrow band to Blue Island Creek.

Georgeville soils make up 70 percent of the association. They have silt loam to silty clay loam surfaces and red firm silty clay to clay subsoils. Herndon soils make up 20 percent of the association. They have silt loam surfaces and yellowish red to yellowish brown firm silty clay to clay subsoils. The remainder of the association is made up chiefly of Cecil, Orange and Appling soils.

About 20 percent of the association is in cultivation or pasture and the remainder is in woods. The crops grown in this association are commonly corn, small grain, lespedeza, tobacco and pasture. Because of their fine textured surfaces, these soils have a rather narrow moisture range over which they can be worked.

The major soils in this association have moderate limitations for septic fields, foundations for buildings and road construction.

Note:

In each of the eight soil associations, there are small areas of well drained to poorly drained soils in draws and depressions on the uplands and in the flood-plains along the major streams. These soils have severe limitations for most uses due to a seasonally high water table or from flooding, or both.

Agricultural Uses of Land

Vance County contains 159,360 acres of land. Farmland uses accounted for 130,865 acres in the 1965 crop year and are identified in Table 5.

TABLE 5
FARM LAND USES-VANCE COUNTY, 1965

<u>Use</u>	<u>Acreage</u>
Harvested cropland	27,729
Idle cropland	12,717
Improved pasture	5,346
Unimproved open pasture	3,197
All other land (mostly woods)	81,876

Source: Preliminary 1966 County Commissioners Farm Census Summary.

The agricultural uses of land are dictated primarily by climate and topography, soil, and market conditions. Climate is discussed in another section of this report, while market conditions are somewhat variable and rely to some extent on farm policies administered by the United States Department of Agriculture.

Approximately 22.5 percent of Vance County acreage is not suitable for intensive agriculture due to a variety of

conditions.¹ These conditions include poor interior drainage caused by a plastic or impervious subsoil, excessively steep topography unsuitable for mechanized farming and subject to erosion, excessive stoniness and boulder outcrops, and areas subject to flooding. Some of these areas can be used for summer pasturage, while other sections can be devoted to forest products or recreational activities. Omitting the soil types in these series that are not conducive to agricultural uses approximately 66 percent of Vance County soils are composed of desirable soils in the Appling and Cecil series.¹ These soils are generally conducive to production of tobacco, cotton, corn, grain and hay, thereby providing Vance County with a valuable natural resource.

It is apparent that Vance County does not suffer from a shortage of land suitable for agriculture. A majority of the soil is suitable for agricultural purposes and Vance County farmers are only using a small portion (37%) of the total acreage, including over 12,000 acres of idle cropland. It is certain that in the years ahead more cropland will be put into production in order to provide both food and fiber for an increasing population. The 12,000 acres of idle cropland in Vance County will undoubtedly be utilized for crop production in the next ten to twenty-five years. A five year program for development of rural areas in Vance County prepared recently by the County Extension Service anticipates that agricultural land can yield higher income through the following methods.²

¹Data extrapolated from Soil Survey of Vance County, N. C., U. S. Department of Agriculture, 1921.

²Source: Target 2, Five Year Program for the Vance Extension Service, 1967.

1. Increased yield of tobacco due to forecasts of increased demand.
2. Increased yield of cotton by as much as 35 pounds per acre through the use of adequate fertilizer, weed control, insect control and improvements in mechanical harvesting.
3. Large increase in beef cattle production utilizing available unused land. Adequate local markets already exist.
4. Increase in swine production, especially in feeder pig production. Adequate local markets already exist.
5. Increase cucumber production by at least 25 percent to supply an existing local market.
6. Increase production and yield of soybeans to serve existing markets.
7. Utilize effective and proven woodland management techniques to take advantage of potential income from forest products.

The seven examples listed above all imply increased land use in Vance County for agricultural purposes during the next five years.

Other population and economic factors will continue to affect agricultural land use in the future. As noted in a recent study of the Population and Economy of Vance County, the size of the average farm is constantly increasing, as is capital investment per farm. At the same time farm population is decreasing. Agricultural economists have estimated that in the United States not more than one person in ten now born on a farm can expect to get enough money from farming to live by minimum American standards. The outlook for the agricultural areas in Vance County appears to be as follows:

1. Larger farms
2. Increased productivity (through technological and scientific improvements)

3. Increased capitalization per farm
4. A slowly declining farm population

Non-Agricultural Uses of Land

Land uses in the rural areas for non-agricultural purposes will continue to accelerate as the urban population increases, and as urban areas begin to invade previously rural sections of Vance County. The growing county seat of Henderson has already affected land values and land uses in previously rural areas close to the city. Many industries now seek large tracts of land adjacent to, but not in cities and towns. Industrial sites adjacent to Henderson must be delineated and preserved if the county is to succeed in attracting new industry. Table 6 outlines the limitations imposed by soil characteristics for urban and agricultural uses including public sewerage systems, septic tank systems, camp sites, recreational areas, industrial sites, and highways. The limitations are those based on trafficability, shrink-swell characteristics and percolation problems. It indicates the degree of limitation as well as the type of limitation. Table 6 was prepared with the assistance of the Soil Conservation Service, U. S. Department of Agriculture.

Forestry

Estimates of forest land and statistics pertaining to saw timber, yield, and ownership have limited and varied accuracy due to the difficulty incurred in accumulating reliable data. The Division of Forestry, Department of Conservation and Development estimates total commercial forest land in Vance County to be in the vicinity of 95,000 acres, of which approximately 6,500 acres is under public ownership (U. S. Corps of Engineers). This estimate, while

admittedly not statistically reliable indicates that somewhere between 55 and 60 percent of the county is heavily forested. The volume of saw timber available in the county is estimated to be in excess of 194,000,000 board feet, almost equally divided between yellow pine and hardwoods.¹

The major obstacle to substantial forest production in Vance County is the fact that most forest acreage is in small tract ownership. There are no significant paper company holdings in the county and much of the forest land could be more accurately described as "wood lots" under individual ownership. Nevertheless, the Vance County Extension Agent estimates that woodland in the county brings in an estimated \$475,000 annually to owners. Foresters of the Department of Conservation and Development are constantly working with woodland owners in the county to advise in the techniques of planting, thinning, cutting and other aspects of forest management. There is no shortage of market. Vance County has five saw timber, pulpwood, and veneer log purchasers according to a recent publication.²

The presence of woodlands in Vance County provides other advantages in addition to income potential. Among these are:

1. Helps to reduce flood hazards.
2. Modifies strong winds.
3. Reduces soil erosion.
4. Provides habitat for wildlife.
5. Natural beauty.

From a standpoint of economics, conservation, and aesthetics the forest lands of Vance County provide a valuable natural resource deserving of the most beneficial management techniques.

¹Source: North Carolina's Timber, USDA Forest Service, Southeastern Forest Experiment Station, 1966.

²Buyers of Forest Products in North Carolina, Department of Conservation and Development, Division of Forestry, 1966.

TABLE 6

SOIL INTERPRETATIONS

BASED ON GENERAL SOIL MAP - VANCE COUNTY, N. C.

LEGEND	LIMITATIONS FOR							
	DWELLING WITH			RECREATION		SUITABILITY FOR		
Soil Associations:	Sewerage System	Septic Tank Filter Fields	Camp Sites	Picnic Areas	Intensive Play Areas	Light Industries	Roads and Streets	General Agriculture Woods
Cecil Association	Slight	Moderate (perc)	Slight	Slight	Slight to Moderate	Moderate (SH-SW)	Moderate (TSC)	Good to Fair
Wilkes Association	Severe	Severe (R,Sh-Sw, Perc)	Moder-ate (Traf)	Moder-ate (Traf)	Severe to Moderate (Traf, Sl)	Severe (Sh-Sw, Sl)	Severe (TSC,Sl)	Poor Fair
Appling-Durham Association	Slight	Moderate (Perc)	Slight	Slight	Slight	Moderate (Sh-Sw)	Moderate (TSC)	Good
Appling-Louisburg Association								
Appling	Slight	Moderate (Perc)	Slight	Slight	Slight	Moderate (Sh-Sw)	Moderate (TSC)	Good
Louisburg	Moderate (R)	Severe (R)		Severe (R)		Moderate (R)	Moderate (R)	
Appling-Vance-Louisburg Association								
Appling	Slight	Moderate (Perc)	Slight	Slight	Slight	Moderate (Sh-Sw)	Moderate (TSC)	Good to Fair
Vance	Severe (Sh-Sw)	Severe (Perc)	Moder-ate (Traf)	Moder-ate (Traf)	Moderate (Traf)	Severe (Sh-Sw)	Severe (TSC)	
Louisburg	Moderate (R)	Severe (R)	Slight	Severe (R)		Moderate (R)	Moderate (R)	

Soil Interpretations - Based on General Soil Map - Vance County, N. C.
(Continued)

LEGEND

LIMITATIONS FOR

Soil Associations:	DWELLING WITH					RECREATION			SUITABILITY FOR	
	Sewerage System	Septic Tank Filter Fields	Camp Sites	Picnic Areas	Intensive Play Areas	Light Industries	Roads and Streets	General Agriculture	Woods	
Vance-Enon-Helena Association										
Vance										
Enon	Severe (Sh-Sw)	Severe (Perc)	Moderate	Moderate	(Traf)	Severe (Sh-Sw)	Severe (TSC)	Good to Fair	Good	
Helena										
Orange-Herndon Association										
Orange	Severe (Sh-Sw)	Severe (Perc)	Moderate	Moderate	(Traf)	Severe (Sh-Sw)	Severe (TSC)	Poor	Poor	
Herndon	Slight	Moderate (Perc)	Slight	Slight	Slight	Moderate (Sh-Sw)	Moderate (TSC)	Good	Good	
Georgeville-Herndon Association										
Georgeville	Slight	Moderate (Perc)	Slight	Slight	Slight	Moderate (Sh-Sw)	Moderate (TSC)	Good to Fair	Good	
Herndon										
Abbreviations For Limiting Factors:										
R - Rock	Slopes 10% impose limit-ations; 10-25% Mod.	Slopes 10% impose limit-ations; 10-15% Mod.	Slopes 6% impose limit-ations; 10-25% Mod.	Slopes 10% impose limit-ations; 10-25% Mod.	Slopes 6% impose limit-ations; 6-10% Mod.	Slopes 10% impose severe limit-ations.	Slopes 25% impose severe limit-ations.			
Sh-Sw - Shrink-Swell Potential										
Perc - Percolation Rate										
TSC - Traffic Supporting Capacity										
Traf - Trafficability										

CHAPTER 6

TRANSPORTATION AND PUBLIC UTILITIES

Transportation

Transportation routes and facilities in Vance County are well placed, diversified, and plentiful. Excellent highway and rail facilities are available, and a new airport currently under construction will soon provide the county with modern facilities for accommodating air traffic. The availability of transportation facilities provides an inducement for attracting manufacturing plants desiring fast and wide distribution of plant output. The various forms of transportation available are discussed individually in the following sections.

Highway

Vance County is located astride two of the eastern seaboard's major north-south highways, U. S. 1 and Interstate 85. U. S. 1 provides a direct route between New York and Florida and provides connections to major interstate highways. Interstate 85 is still under construction between Durham and Henderson. When completed, this highway will provide direct access to the northeast, and to Charlotte and Atlanta in the southeast. U. S. Highway 158 runs east-west through Vance County and connects with other major east-west highways throughout the state. N. C. 39 is the most important state highway in Vance County. This road enters the county at Epsom from the south-east and terminates at the Virginia State line north of Townsville. It serves as a farm to market road and provides access to Henderson for the rural non-farm worker. It also serves as an access road to the western shoreline of Kerr Reservoir.

Vance County's registration of automobiles and trucks numbered 13,789 in 1966 according to the N. C. Department of Motor Vehicles. The operators of these vehicles are

provided with an extensive network of paved and unpaved all weather secondary roads which provide excellent north-south and east-west circulation. Access to the northwest section of the county from the northeast is hampered by the extensive shoreline of Kerr Lake. County residents living north of Middleburg must drive south to Henderson to N. C. 39 in order to get to the northwest. However, the extreme northeast section of the county is sparsely populated. Since there are no major population centers or industrial plants in the northwest, the lack of direct northeast to northwest highway facilities poses no serious problems.

Average daily 24 hour traffic volume counts made by the State Highway Commission for 1965 show the frequency of highway usage. See Maps 8 and 9.

Figures obtained from the State Highway Commission indicate road mileage in Vance County to be as follows:¹

A. Primary Roads

	<u>Miles</u>
1. Rural paved	67.32
2. Municipal paved	10.19
3. Unpaved	<u>0</u>
Total primary highways	77.51

B. Secondary Roads

1. Rural paved	209.20
2. Rural unpaved	131.90
3. Municipal paved	8.67
4. Municipal unpaved	<u>3.43</u>
Total Secondary Roads	353.70

C. Grand Total 431.21

Rail

The Seaboard Air Line Railroad main line runs in a north-south direction through Vance County. On an average

¹Source: N.C. State Highway Commission. Mileage given as of January 1, 1967.

**1965
AVERAGE DAILY
24 HOUR
TRAFFIC VOLUMES**

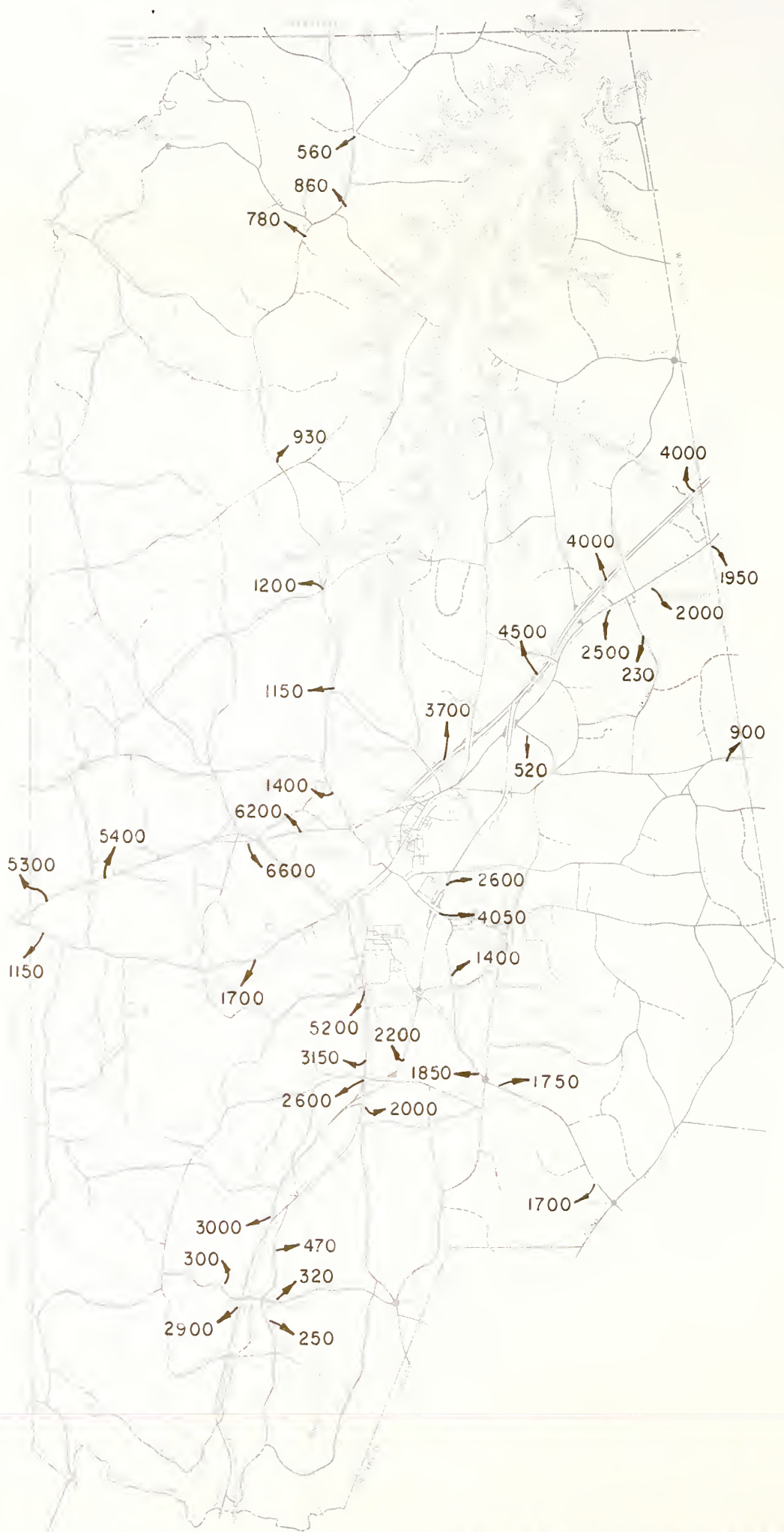
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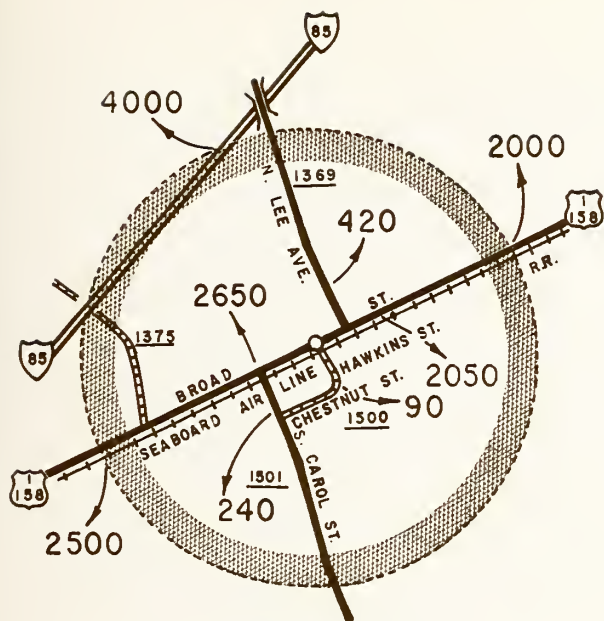
**VANCE COUNTY
NORTH CAROLINA**

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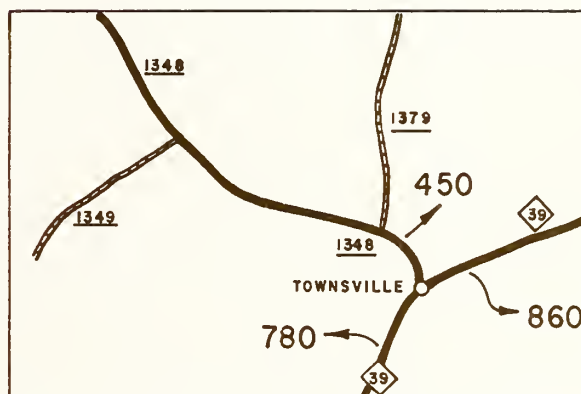
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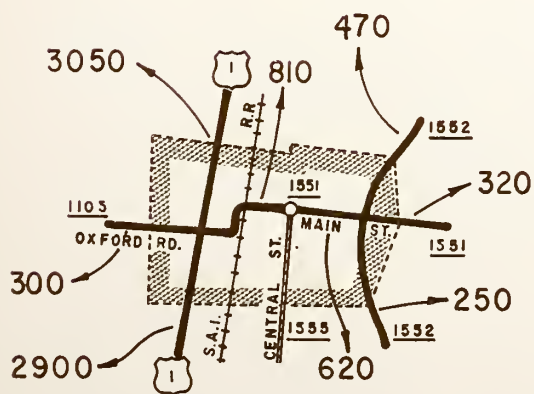




MIDDLEBURG



TOWNSVILLE



KITTRELL

AVERAGE DAILY 24 HOUR TRAFFIC COUNT 1965

MAP N° 9

day about 30 scheduled freight and passenger trains pass through the county. Four northbound and four southbound passenger trains stop at Henderson providing passenger and railway express service to the county. Freight cars are dispatched daily by local trains from Durham and Raleigh. Thus, the county is assured of direct connections to New York and other northern cities, to Raleigh, Atlanta, Jacksonville and other southern cities. Both the Seaboard Air Line Railroad and the Southern Railroad maintain branch lines between Durham and Henderson, providing freight service each day between these two points. The Seaboard branch line offers freight service to the port of Norfolk for shipment of goods to points overseas.

Bus

Atlantic Greyhound Corporation maintains a local terminal in Henderson. Currently, nine northbound and twelve southbound Greyhound busses provide service to Henderson. Direct service is provided to Norfolk, Richmond, New York, Boston and other points in the north and to Raleigh, Atlanta, Jacksonville, St. Petersburg and other points in the south. In addition, a commuter bus provides two round trips daily between Durham and Henderson.

Air

Until recently the only airport facility in Vance County was a 2,000 foot unlighted sod runway located four miles south of Henderson. Although this landing strip is shown on CAA charts, the condition of the runway and hangar facilities leave much to be desired. Under the leadership of the Henderson Township Airport Authority efforts were made to obtain a good airport for Vance County. Plans were approved and construction is now underway on the N. W. Weldon Airport located seven miles north of Henderson on the shore of the Nutbush Creek Recreation Area section of Kerr Lake. Access

to the airport is provided by State secondary road 1308 from N. C. 39.

The airport will have a 2800 feet paved runway, 60 feet wide. Future expansion will provide for a runway of 3500 feet x 75 feet. The runway will be lighted for night operations. A paved turnaround, a 40 feet paved taxiway, and a 150 feet x 300 feet apron will be provided. Plans call for provision of an administrative building plus hangar and automobile parking facilities. It is anticipated that the station will be attended during daylight hours for the routine servicing of aircraft.

The N. W. Weldon Airport will be able to accommodate aircraft of a size equivalent to a Beechcraft D-18. Future planned expansion would allow larger aircraft equivalent in size and weight to a DC-3 to use the runway. This airport will be suitable for most types of private and corporate aircraft. Air taxi service could provide service to the Raleigh-Durham Airport in a few minutes flying time contrasted with fifty minutes travel time by highway.

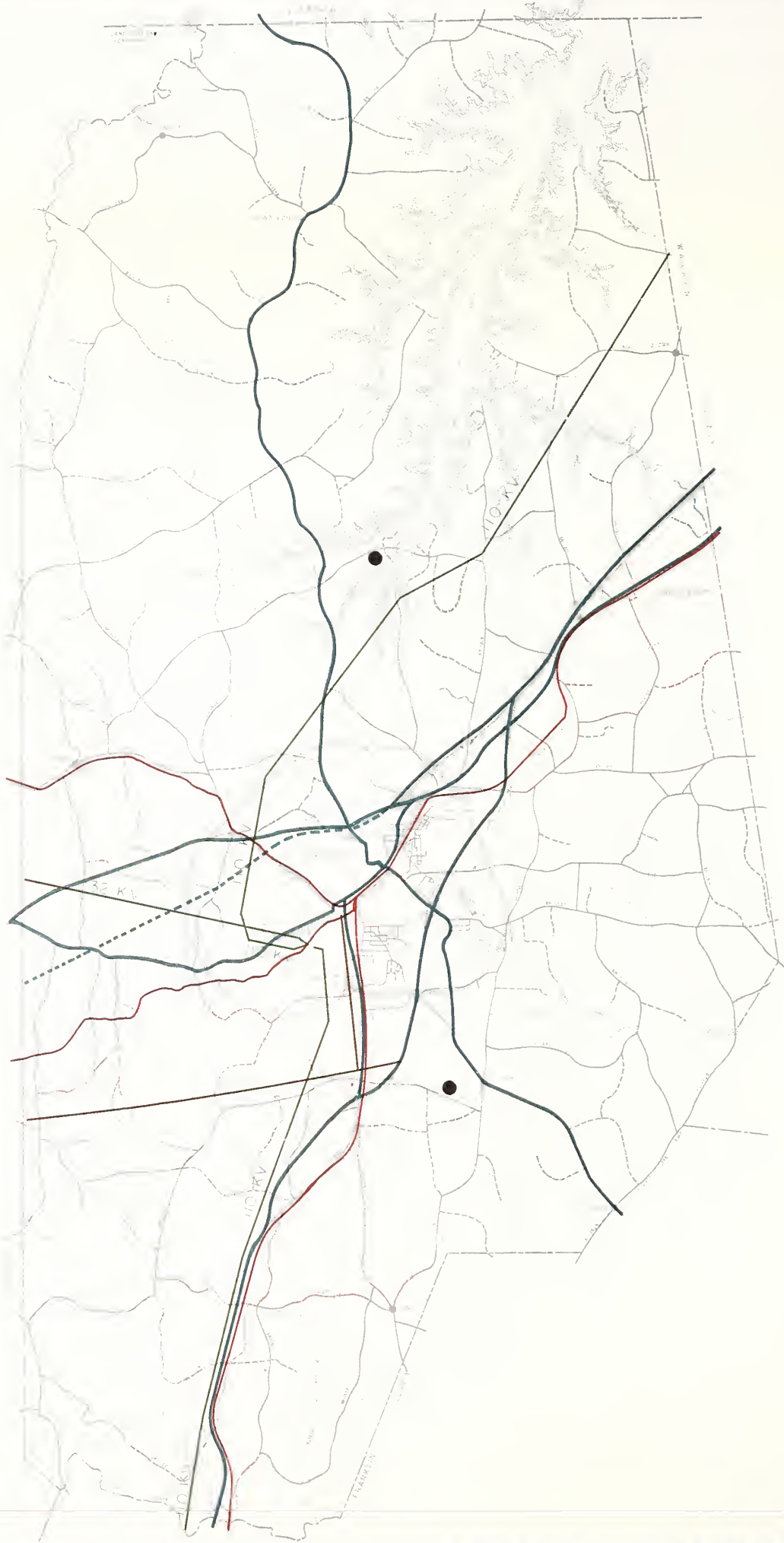
A major airport midway between Raleigh and Durham is approximately 35 miles from Henderson. This airport is classified as a medium hub facility and is served by three scheduled airlines: Eastern, Piedmont, and United. Direct flights are offered daily to such points as New York, Charlotte, Washington, D. C., Jacksonville, Fla., and Atlanta.

Major highway, rail and airport facilities in Vance County are shown on map 10.

UTILITIES

Telephone

Vance County is served by the Carolina Telephone and Telegraph Company. This company provides telephone service to all areas of the county and all telephones in the county are part of the Henderson exchange with the exception of a small area in the vicinity of Drewry. The Drewry area is



TRANSPORTATION & PUBLIC UTILITIES

MAP No. 10

- | | |
|-----------------------------------|---------------------|
| — PRIMARY ROADS | — RAILROADS |
| — HIGH VOLTAGE TRANSMISSION LINES | ● AIRPORTS |
| | — NATURAL GAS LINES |

VANCE COUNTY NORTH CAROLINA

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served by the Norlina exchange of Carolina Telephone and Telegraph Company. For the most part all intra-county calls are classified as local calls. There is no shortage of long distance trunk lines leading out of Henderson. Direct Distance Dialing is provided for long distance calls originating in the Henderson exchange. There is currently a short delay in the provision of local circuits to new subscribers but company officials consider this to be of a temporary nature.

Electric Power and Light

The major source of electric power for the county is provided through the facilities of Carolina Power and Light Company which maintains district offices in Henderson. A small area in the northern portion of the county is served by the Virginia Mecklenburg Electric Membership Cooperative, while another rural area in the southeastern portion of the county is served by the Wake E.M.C. The location of major power facilities is shown on Map 10. In addition to the 110 KV and 132 KV lines shown on the map, plans have been made to construct a 230 KV line from Roxboro to a switching point in Henderson. Since Henderson serves as an important switching center for major power transmission lines it is obvious that the county has access to unlimited amounts of power for residential, commercial, and industrial uses.

Natural Gas

The distribution and use of natural gas is currently limited to the Henderson area. An eight inch high pressure natural gas pipeline provides bulk needs for the Henderson area. Officials of Public Service Company estimate that this line will adequately serve the needs of the county for the next ten years allowing for moderate residential and industrial growth. Smaller lines branch off the major pipeline to industrial locations, while a network of two-inch lines serves residential customers in Henderson. Map 10 shows the location of major natural gas facilities in Vance County.

CHAPTER 7

GENERALIZED LAND USE

This chapter will illustrate and discuss general land use patterns in Vance County. To facilitate the field survey, the county was divided into four major geographical areas: 1. North and east of Kerr Reservoir, 2. North and west of Kerr Reservoir; 3. South and east of Henderson; and 4. South and west of Henderson. Additional areas studied were North and South Henderson (unincorporated), Kittrell, and Middleburg. A separate discussion of each of these areas, accompanied by maps, follows.

Northeast Vance County (See Map 11)

Northeastern Vance County is dominated by the extensive shoreline of the John H. Kerr Reservoir. There is only one east-west road facility which crosses the southernmost portion of the reservoir. Inhabitants of the extreme northeast section have to travel in Warren County north from the community of Drewry in order to reach their farms and homes. Most of the roads in the extreme northeast are unpaved. However, they are gravel-surfaced all weather roads, suitable at low speeds to handle the small volumes of traffic generated in this area.

There are no retail outlets north of Drewry and no industry. The area is sparsely inhabited and predominantly nonwhite. There are large areas of second growth woodlands and small farms adjacent to the roads. In spite of the natural beauty adjacent to the eastern shoreline of the reservoir there is considerable blight caused by small trash dumps and a preponderance of junked automobiles adjacent to most of the houses. Most of the housing north of Drewry is substandard requiring either substantial repair or replacement.

The community of Drewry, partially in Vance County, but mostly in Warren County, consists of a cluster of single family dwellings, several combined general store-service stations, a community center, volunteer fire department station house and a church.

West of Drewry, State Road 1366 supports scattered residences and Nutbush Elementary School. Three unpaved deadend roads branch off SR 1366 which terminates at Bullocksville Park, a facility of the Kerr Reservoir Development Commission, under lease from the U. S. Corps of Engineers. (The facilities of the Kerr Reservoir Development Commission will be discussed elsewhere in this report).

South and west of Drewry three paved roads running north to south connect to U. S. Highway 1. The easternmost road leaves Vance County at Drewry while the other two roads terminate at the Flemingtown Road Marina (known also as Meekins Landing) and Satterwhite Point Park and Marina. This area is less heavily wooded, better suited for agriculture, and somewhat more prosperous in appearance than the extreme northeast section of the county. SR 1319 leading to Satterwhite Point is heavily travelled during summer weekends due to the popularity of the park and its accessibility from Interstate 85, U. S. Highways 1 and 158. There is no industry in this area and only a few scattered retail outlets such as general stores and service stations. Two camping trailer sales outlets are open during the summer months only.

A residential subdivision development is currently under construction south of SR 1308 between the reservoir and SR 1319. This development, known as Kerr Lake Estates, contains approximately 50 building sites and is surrounded by a nine hole golf course designed for ultimate expansion to 18 holes. The building sites are located on wooded, rolling land. Eight homes have been completed and others are under construction. The road supporting this subdivision is currently unpaved and has not yet been accepted by the State Highway Commission.

It is to be hoped that the road will eventually be paved in order to keep down the dust and to provide a smoother driving surface than currently exists. Existing homes in this subdivision would seem to indicate that a very pleasant and tasteful community will eventually develop.

N. C. 39 is the principal highway west of the reservoir running in a northerly direction from Henderson. Several paved and unpaved roads branch off eastward from N. C. 39 to provide access to the reservoir. The area is not densely populated and agriculture predominates. There are no industries east of N. C. 39 and hardly any retail stores or service stations in this area. There are five developed park areas on the western shores of Kerr Reservoir. From north to south they are: Henderson Point, operated by the Kerr Reservoir Development Commission (KRDC); Hibernia Recreation Area, maintained by the U. S. Corps of Engineers; Vance County Recreation Area and Marina, operated under lease by the Vance County Wildlife Club; Williamsboro Wayside, a small picnic facility (KRDC); and the Nutbush Creek Recreation Area, also operated by the Kerr Reservoir Development Commission. The Henderson township airport is currently under construction in the vicinity of the Nutbush Creek Recreation Area.

In addition to the park areas a long peninsula north of the termination of SR 1329 has been set aside as a state waterfowl refuge managed by the N. C. State Wildlife Commission. This area is being utilized as a rest area for waterfowl and as a feeding ground for dove. The land immediately south of the refuge is under private ownership and provides an effective barrier to would-be trespassers.

In summation, the northeast section of the county is sparsely populated and dominated by Kerr Reservoir. Roads

are in satisfactory condition but many of them terminate at the reservoir. The area is heavily wooded. Agriculture is generally limited to areas adjacent to the farm to market roads. New residential construction is scattered with only one subdivision development under construction in this area. Many rural homes are in need of extensive repair, especially in the extreme northeast section.

Kerr Reservoir (See Map 12)

When Congress approved a comprehensive plan for the development of the Roanoke River Basin in 1944 the primary justification for the project was to "provide for flood control and other purposes". The "other purposes" include recreational facilities and it is this feature of Kerr Reservoir that has had significant impact on Vance County and surrounding areas. Kerr Reservoir is a major regional recreation area serving residents of North Carolina and Virginia.

Overall supervision and responsibility for Kerr Reservoir is provided by the U. S. Corps of Engineers with reservoir headquarters in Boydton, Virginia. The Corps of Engineers has received the cooperation of various governmental agencies in North Carolina and Virginia in the development and utilization of the area for public use benefits. Quasi-public agencies have also developed organized camps and recreation areas on land leased from the federal government. In North Carolina most of the public use facilities are controlled by the Kerr Reservoir Development Commission utilizing land leased from the Corps of Engineers.

Map 12 shows the public and quasi-public facilities in the Vance County portion of Kerr Reservoir. The map also shows the types of recreation facilities available at the public use areas. The recreation areas at Henderson Point and Hibernia are operated by the Corps of Engineers while all other public use areas are under lease to the Kerr Reservoir Development Commission and the Vance County Wildlife Club. The Commission in turn supervises concessions at Flemington Road Marina (Meekins Landing) and Satterwhite Point. Lease holdings of the Kerr Reservoir Development Commission currently total 7,460 acres.

The original acquisition of land by the Corps of Engineers was based on the acreage needed to provide an adequate water storage area. Consequently, land was purchased

to an elevation of 320 feet. (Note project boundary line on Map 12). As a result of the topographic requirements in purchasing land for the reservoir project, no lake frontage is available for private residential or resort type development. Land is available fairly close to the shoreline but none of the property actually abuts the lake. There is little likelihood that extensive residential development will occur in the vicinity of the reservoir except that portion close to the Henderson area unless some type of easement to the lake shore can be negotiated with the Corps of Engineers.

While the project boundary presently precludes individual ownership of lakefront lots it does result in the preservation of natural scenic beauty. Visitors to the area are appreciative of the unspoiled shoreline broken only by the attractive recreation areas maintained by the Corps of Engineers and the Kerr Reservoir Development Commission. Under the present form of property ownership there is little likelihood that any large areas will come to resemble the haphazard and intensive development found in many previously attractive waterfront areas in North Carolina. It is recognized that in the immediate future more camping sites and recreation areas will be needed along the reservoir. In an effort to meet demand for more camp space 46 additional camp sites are currently being added by the Kerr Reservoir Development Commission to the 301 already available in public use areas and the 120 sites in non-government areas.¹ In addition to camp sites, picnic areas and boat ramps, marina concessions provide sales and service facilities as well as mooring spaces to the thousands of boat owners who utilize Kerr Reservoir during the summer months. Snack bar and restaurant concessions in high use areas also provide a needed service to the visitor.

¹Source: J. C. Cooper, Sr. in State Magazine, March 15, 1967.

A more detailed examination of recreation areas available to Vance County residents will be made in a forthcoming report entitled, Community Facilities Plan for Vance County, which will examine present recreation areas in the county together with future needs and potential. It is obvious that Kerr Reservoir is already serving as a major recreation area for the citizens of Vance County, the State of North Carolina and the State of Virginia. Expansion of existing recreation areas will be necessitated as a result of increasing demand for camp sites and access to water sports areas in North Carolina.

Northwest Vance County (See Map 13)

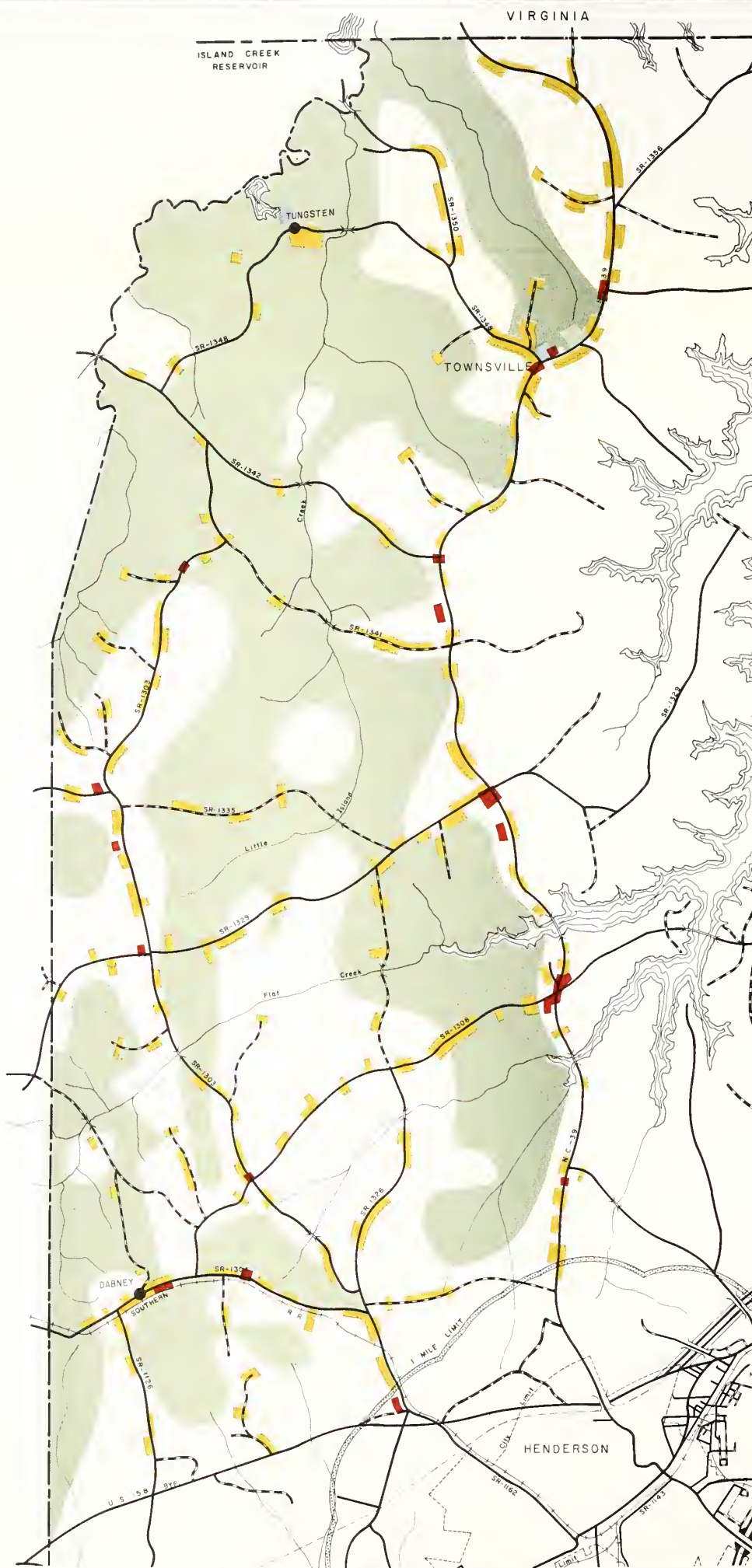
The northwest section of the county is served by N. C. 39 on the east and by SR 1303 to the west. These roads run north-south and are roughly parallel 3-4 miles apart. The extreme northwest portion is very hilly, densely wooded and sparsely populated. It is estimated that population frequency in this area is not more than 3-5 families per road mile. The few roads in this area, however, are paved. The only industries noted in the extreme northwest were a sawmill in Townsville and a small work force at Tungsten extracting pyrite from the mine tailings. Only five employees are currently working at the mine location.

In spite of the extensive woodlands in this area there are no large paper company landholdings. Logging operations were observed but these appeared to be on a small scale and performed by individual farmers in the area. In the northernmost portion agriculture appears to be concentrated along N. C. 39 between the state line and Townsville.

The unincorporated community of Townsville on N. C. 39 is the focal point for the northern section of the county. Located in this community are a school (grades 1-12), a new post office, service stations, churches, a sawmill, a volunteer fire department, and approximately 75 residential units.

Single family dwellings are scattered on both sides of N. C. 39 between Townsville and the community of Williamsboro. The New Hope Elementary School is located midway between Townsville and Williamsboro. There are four combination retail store-gasoline stations on this stretch of N. C. 39.

The unincorporated community of Williamsboro is located at the intersection of N. C. 39 and SR 1329. This community, with its historic church erected in 1757, was the first town chartered in Vance County (1787). At one time Williamsboro was one of North Carolina's leading religious,



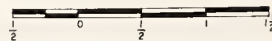
LAND USE - N.W.
MAP NO 13

- PUBLIC & SEMI-PUBLIC
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- HEAVILY WOODED AREAS

VANCE COUNTY NORTH CAROLINA

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business and educational centers and for a short time during the Revolution was the State's Capital. Several ante-bellum home still stand, but the church is now a historical relic, the educational academies have long since vanished, and the plantations have ceased to exist. Williamsboro remains as a pleasant and quiet community with a few general stores and service stations, a garage, and approximately 40 dwellings.

North and west of Williamsboro there is no substantial residential development other than scattered farmhouses and residences along the state secondary roads. The land is not as hilly as the extreme northern section and is used primarily for agriculture and forestry.

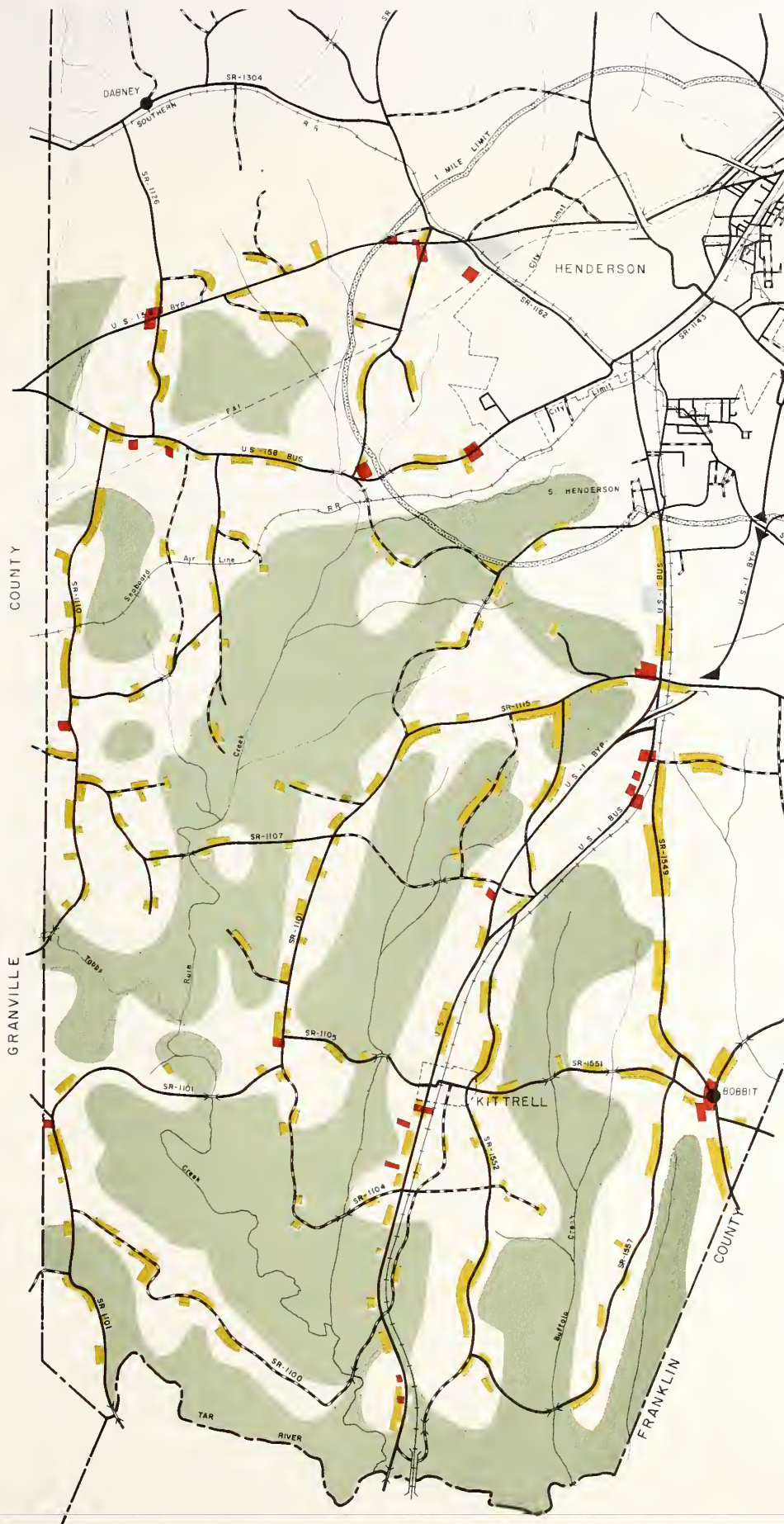
Between U. S. 158 Bypass and SR 1329 roads are more frequent and farmhouses and residences dot the landscape. There are two schools and some residential development in the community of Dabney, and a branch of the Southern Railroad parallels SR 1304 through Dabney. Just west of Dabney is a large auto junkyard open to public view. This unsightly conglomeration of wrecked autos is an eyesore to the community but it is not on a major thoroughfare. As previously noted junk cars are a common sight in the yards of many rural homes. These scattered wrecks would be better located in an auto salvage yard. The presence of this enterprise has undoubtedly prevented further accumulation of junk cars throughout the county. However, some type of fence or evergreen screening along the front of the junk yard would do much to improve the appearance of the community.

Southwestern Vance County (See Map 14)

This area is bounded to the north by U. S. 158 Bypass and to the east by SR 1549 and U. S. 1 (Business). To the south and west the area is bounded by Franklin and Granville counties. The northern boundary of U. S. 158 Bypass is still predominantly rural in character. Closer to Henderson, commercial and industrial uses of land are appearing on the south side of the highway. Since the predominant use of this highway is to provide a through traffic facility, care should be exercised to control urban development along the highway. Adequate setbacks should be required for business uses and the use of access roads should be encouraged for residential development. Proliferation of business and industrial uses without adequate safeguards could eventually destroy the purpose for which the highway was constructed; however, proposed Interstate Highway 85 west of Henderson will undoubtedly divert most of the through traffic now using U. S. 158.

South of U. S. 158 Business and east to the community of Bearpond the land is well drained, rolling and suited for agriculture. Residential dwellings are located along the secondary roads in this area but thus far there has been no extensive residential development. A branch of the Seaboard Airline Railroad enters the county at the small community of Watkins and runs east through this general area of Henderson.

The community of Bearpond lies approximately 3 miles south of Henderson's southern boundary and consists of two service stations, a large general store and approximately 40 homes. A volunteer fire department is also centered in Bearpond. North of Bearpond on U. S. 1 Business to Henderson urban growth becomes more concentrated. Several industrial plants are located on this section of U. S. 1, taking advantage of level land, good highways, and access to the main line of the Seaboard Airline Railroad. Land usage north of Bearpond is currently mixed, and contains among other uses, a large warehouse, drive-in theater, trucking terminal, trailer court,



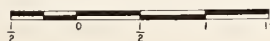
LAND USE - S.W.
MAP NO 14

- PUBLIC & SEMI-PUBLIC
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- HEAVILY WOODED AREAS

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wholesale groceries, residential units, etc. The general appearance of the highway between Bearpond and the city limits of Henderson is untidy. A few of the industrial and warehousing concerns have very attractive buildings and grounds, but dilapidated, unpainted housing, unkempt yards, accumulations of trash, and a proliferation of signs and billboards present a very unflattering approach to the commercial, cultural and social center of Vance County.

South from Bearpond on U. S. 1 and SR 1549 respectively are the communities of Gill and Bobbitt. These communities provide a minimum of retail services to farms in this area. Land here is mostly level to gently rolling and well drained. Farming is extensive in this general area. The bulk of residential settlement is along SR 1549 between Gill and Bobbitt with clusters of residences at each of these communities. South of Bobbitt adjacent to SR 1557 the land becomes more broken and hilly. The land is suitable for farming in some areas but in the more hilly sections woodlands predominate.

South from Gill on U. S. 1 towards Kittrell residential development is sparse. The only significant facility between Gill and Kittrell is Zeb Vance High School, currently the largest school in the Vance County system. Kittrell is a small, incorporated community three miles south of Gill on U. S. 1. Between 1858 and 1895 the town was the site of a large summer resort. At one time it had a resort hotel which could accommodate 500 guests. During the Civil War a Confederate army camp and hospital were located in Kittrell. The only reminder of the war days still remaining is a small Confederate army cemetery, the final resting place of 52 soldiers who died in the hospital. The Continental Strawberry Plant Company once shipped hundreds of thousands of strawberry plants from its facilities in Kittrell. To visit the community now, it seems inconceivable that this town once competed with Henderson as a

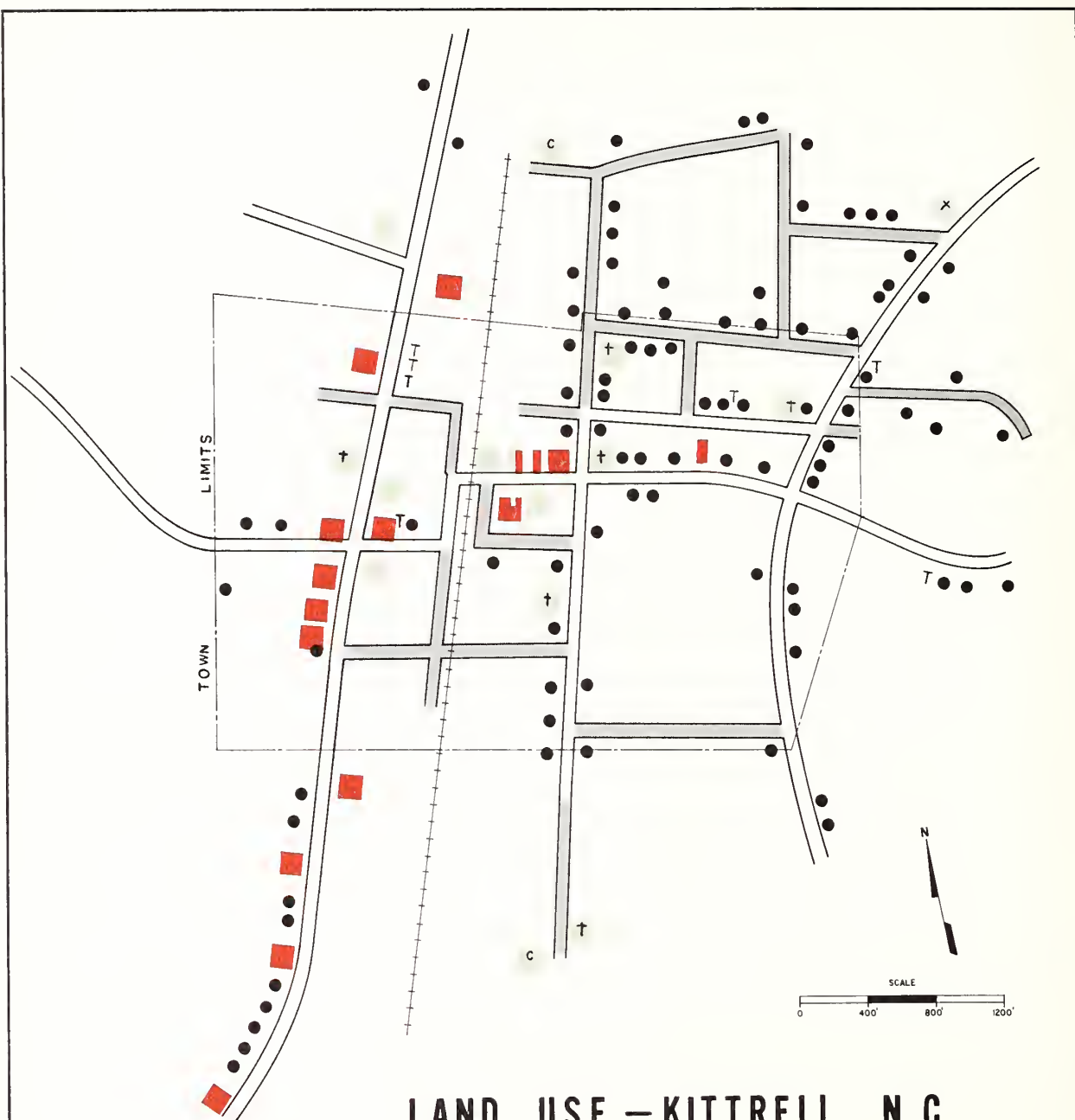
commercial center, that it was once known as a resort center, and that many prominent North Carolinians maintained private cottages in the area.

The present community of Kittrell (See Map 15) is the home of Kittrell Junior College, a small church supported Negro school with a student body of 185 and a faculty of 20. The school buildings are in a poor state of repair. To provide adequate dormitories, classrooms, library facilities, etc. would require substantial capital investment. Kittrell Graded School, a predominantly Negro elementary school, is adjacent to Kittrell Junior College on the west side of U. S. 1. The elementary school is a part of the Vance County school system. The community of Kittrell itself is located east of U. S. 1 and the Seaboard Air Line Railroad.

The old commercial center has all but been abandoned. Only two small stores are still open in this section. Two large, combination grocery store-service stations are located on each side of U. S. 1 and attract most of the retail trade in the area. The post office, once located in the old commercial center, has recently moved to new quarters on U. S. 1. In some respects this is regrettable as post office patrons now have to contend with the high traffic volumes of a major highway. The previous location presented no traffic problems and was closer to the areas of residential development than the new location.

The town does not have municipal water and sewer facilities at this time. However, an application for a water study grant has been made to the Farmers Home Administration and a municipal water system may be provided in the future. Meanwhile, residents must rely on drilled wells for water and septic tanks for sewage disposal.

Kittrell presents a generally pleasing appearance. There are several large old houses which have been well maintained. Smaller homes for the most part are well maintained although there are some deteriorating structures



LAND USE — KITTRELL, N.C.

MAP № 15

LEGEND

- | | |
|---------------------------|-------------------------|
| ● RESIDENTIAL UNITS | ■ PUBLIC OR SEMI-PUBLIC |
| T MOBILE HOME | C CEMETERY |
| † CHURCH | --- TOWN LIMITS |
| ■ COMMERCIAL AREA (STORE) | ■ UNPAVED STREET |

that are in need of major repair and still others that are in a dilapidated condition. Several streets are unpaved but maintained as all weather roads. Others are in a poor state of repair and could be more accurately described as paths or trails. The map accompanying this text shows all the roads and streets in the general vicinity of Kittrell without differentiating between state maintained roads, town maintained streets, or private streets.

In addition to the residential and commercial development Kittrell has a community building, several churches, and a three bay garage type building housing the equipment of Kittrell Volunteer Fire Department.

South and west of Kittrell the topography varies from rolling to steep and hilly. Population density is light due to the general unsuitability of the land for intensive cultivation. Agriculture is limited to small strips adjacent to the secondary roads while the remainder is heavily wooded. Housing is widely scattered. The frequency of residential units is estimated to be not more than four per road mile along the secondary roads in this region. U. S. 1 south of Kittrell supports scattered residences and a few marginal service stations. The main line of the Seaboard Air Line Railroad parallels U. S. 1 from Henderson to the county line at the Tar River.

Southeast of Kittrell residences and farm homes are located on State secondary roads 1552 and 1557. The topography varies from rolling to hilly. Agriculture is generally confined to the more level areas adjacent to secondary roads while woodlands dominate the landscape. This region is drained by Buffalo Creek which empties into the Tar River at the southernmost extremity of the county.

Southeast Vance County (See Map 16)

The southeastern section of the county as described below has as its northern boundary U. S. 1 and U. S. 158. To the south and east the area is bounded by Franklin and Warren counties. The political subdivisions in this area are Sandy Creek Township and portions of Middleburg and Henderson townships. Southeastern Vance County is the most prosperous rural region in the county. The land is more level than in other areas and supports extensive land cultivation. The numerous creeks provide good drainage and large areas of suitable topsoils are available for tobacco cultivation.

The incorporated community of Middleburg, (See Map 17) located on U. S. 1 approximately $1\frac{1}{2}$ miles from the Warren County line no longer has any importance as a commercial center. There are two small combination grocery store-service stations which comprise the sum of commercial activity in the community. A small building adjacent to one of the stores houses the Middleburg Post Office. Little, if any business is generated by traffic on U. S. 1. An old building which used to house the post office is now in a poor state of repair. Adjacent to this building and fronting on U. S. 1 an accumulation of junk cars on an overgrown lot presents an eyesore to the passing motorist. Houses are widely scattered within the town limits and unkempt vacant lots create an atmosphere of neglect.

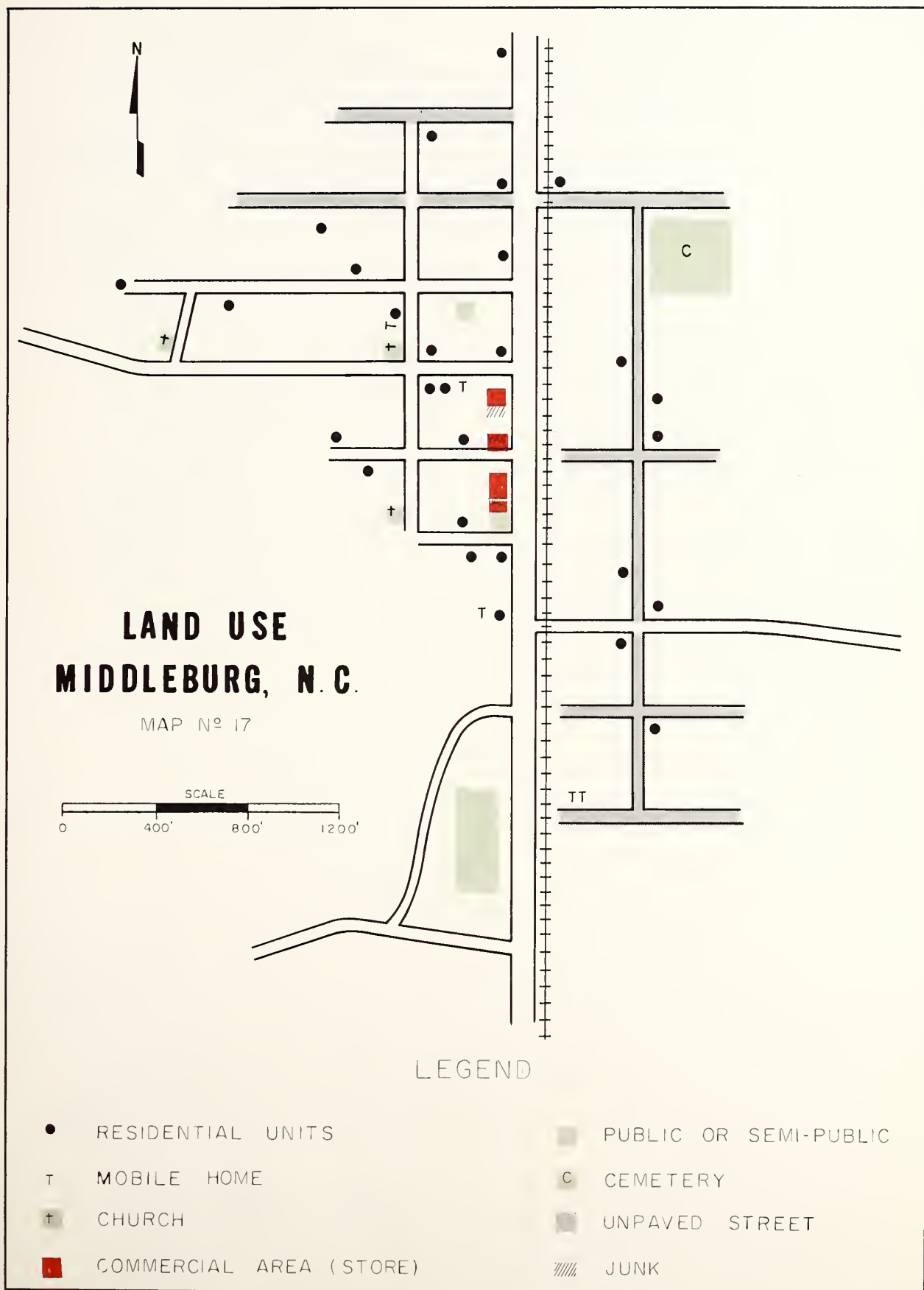
A housing count shows that approximately thirty dwellings are located inside the town limits. This figure includes four mobile homes. As previously noted the dwellings are widely dispersed. Nine houses and two mobile homes are located east of U. S. 1 and the parallel-ing Seaboard Air Line Railroad tracks while the remaining homes and commercial structures are to the west of U. S. 1.

The majority of houses appear to be structurally sound, but five homes are in a dilapidated condition, not suitable for occupancy or worth repairing.

Middleburg School provides educational facilities for grades 1-12. Upon completion of the consolidated county high school near Henderson, the high school curriculum will be discontinued. A community building in Middleburg is in need of minor repairs and the surrounding grounds deserve a cleanup. Two churches in Middleburg account for the remaining structures.

The original town of Middleburg was laid out with a gridiron street pattern which still prevails. Thus, there are far more streets than one would expect to find in a community of this size. There are no city conveniences provided other than the network of streets. Water is supplied by individual wells, and septic tanks take care of sewage.

South of Middleburg there is considerable residential development in the areas of Brookston and Greystone. The most prominent feature in this area is a large granite quarry and a rock crushing plant. Ready access to Henderson is provided by U. S. 1 and SR 1001 for residents of this area. Further south, U. S. 1 Bypass provides excellent highway facilities for the through traveler. Prime industrial sites are available on level ground with ready access to the bypass. These sites are east of the residential areas of Henderson and its environs and any smoke or dust generated by industrial plants would be carried away from the city by prevailing winds. The sites would provide ready access to the Henderson worker while at the same time the immediate area does not currently support any appreciable amount of residential development. A large manufacturing plant is already located in this area and a "shell" building for industrial use has recently been completed. City water and sewer facilities can be provided in this area as well



as unlimited supplies of electricity and natural gas.

At the point where N. C. 39 leaves the city limits of Henderson east of U. S. 1 a considerable amount of development has taken place in recent years. Unfortunately, the development has been a mixture of industrial and residential land uses. On the west side of N. C. 39 there is a large lumber yard and saw mill. On the other side of the road there is a large concrete block manufacturing plant. A residential subdivision and a ten unit trailer park abut these industrial uses from the south and east. Direct access to several of these homes appears to be gained by driving through the facilities of the block plant which are located on both sides of a secondary road. The noise, smoke, and dust from these two plants would seem to provide less than ideal living conditions for inhabitants of the residential subdivision east of the plants. Residences are interspersed with mobile homes. Approximately 25 mobile homes were counted in this immediate area, including 15 in two separate mobile home parks.

East of N. C. 39 between Greystone to the north and Epsom to the south residential development is scattered while commercial activity is limited to grocery stores and service stations at intersecting secondary roads. There is no industrial development in this area. From U. S. 1 in the north to the County Line Road (SR 1523) in the southeast the predominate feature of the landscape is tobacco farming. The land relief is more gentle than in other sections of the county and much more woodland has been cleared here than in other areas. The road network is adequate to meet the demand and most of the through roads are paved.

South of Henderson on N. C. 39 the unincorporated community of Gillburg has approximately 30 homes, two churches and a few retail outlets and service stations.

Further south, the community of Epsom in Franklin County is just south of the Vance County line and provides convenience shopping, churches, a school, and a volunteer fire department for people in the area.

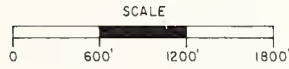
South Henderson (See Map 18)

Lack of orderly development in the unincorporated area of South Henderson has created a series of problems that will plague the expanding city of Henderson in the future. The two most serious problems are incompatible land uses and haphazard street layout. Since neither of these problems are easily or inexpensively rectified certain portions of South Henderson will present serious long range planning problems.

The two major sections of South Henderson can be described as a narrow strip on each side of U. S. 1 Business, and a "village area" south of Alexander Avenue. The two areas are effectively divided by the tracks and right-of-way of the Seaboard Air Line Railroad east of U. S. 1 Business.

The city limits of Henderson cross U. S. 1 at Dorsey Avenue, within two blocks of Henderson's main commercial trade center. Proceeding south on U. S. 1 there is a surprisingly large amount of vacant land adjacent to the city limits. For a distance of 3,000 feet south along U. S. 1 there are three wholesale establishments and four small light industrial plants. There is much vacant land on each side of the highway. There is very little residential development along U. S. 1 from Henderson until St. Matthews Street intersects the highway. In this general area there is a mixture of residential and commercial usage. Many of the houses along St. Matthews Street, Mariam Street, and U. S. 1 in this vicinity are in very poor condition. Several commercial activities such as drive-in restaurants, service stations, a truck leasing firm, and a "palm-reader" are also located in this area. Interspersed among these structures are a number of signs, large and small, which add to the clutter along the highway. The total picture is one of general untidiness. As noted in a previous section of this chapter the entrance to Henderson from the south on U. S. 1 Business is an eyesore.

SOUTH HENDERSON



LAND USE

MAP NO 18

LEGEND

	RESIDENTIAL		COMMERCIAL		CHURCH
	WHOLESALE		INDUSTRIAL		PUBLIC
	SERVICES		JUNKYARD		UNPAVED

South of this blighted area U. S. 1 is lined with residential structures which for the most part are well maintained. To the west of the highway residential development is located on two streets which roughly parallel U. S. 1. Some of these homes are in sound condition while others in a predominantly nonwhite area are in need of repair. Further south on U. S. 1 land use is diverse. Located on a half mile section of the highway are such structures as residences, a trailer court, an animal hospital, a television repair shop, a machine shop, a grocery store, a service station, a large manufacturing plant, and a lumber yard. Towards the community of Bearpond residential development is less apparent. The dominant features include a very attractively landscaped warehouse, a drive-in theater and a trucking firm headquarters with maintenance shops.

To the east of U. S. 1 Business and south of Alexander Avenue the street layout is tortuous and devoid of order. Side roads branching off the winding Old Epsom Road travel for various lengths and contain right angle turns, deadends and offsetting intersections. Many of these roads are unpaved and lacking adequate shoulders and drainage ditches.

Housing in this area is generally in the under \$10,000 category and there is little evidence to indicate that residential construction is taking place in the area. Approximately fifty percent of the housing units in an area bounded by Alexander Avenue, Old Epsom Road, King Street and U. S. 1 Business are substandard. Some of these substandard homes are in need of extensive repair while others are not of sufficient value to be renovated and should be torn down.

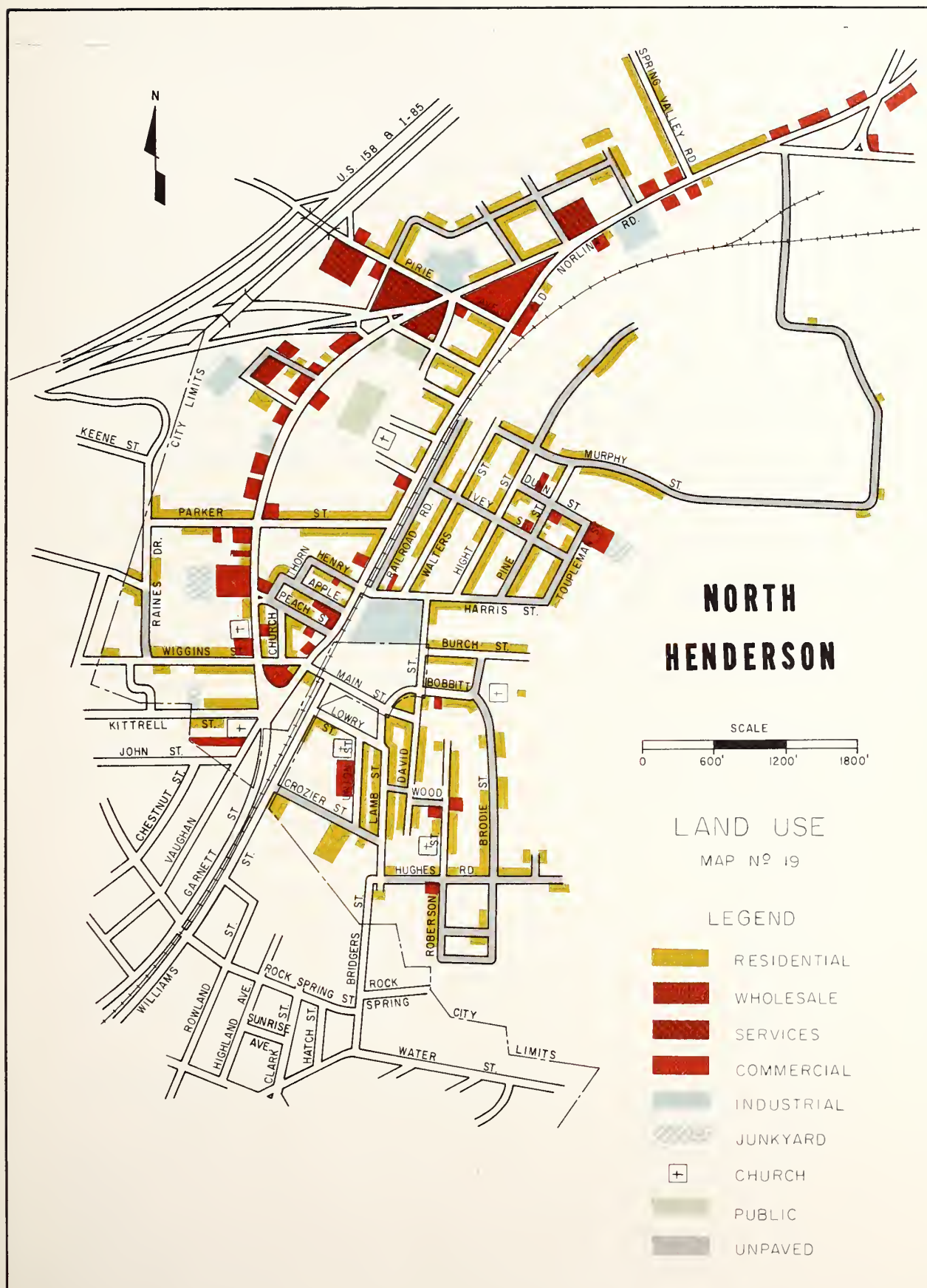
A large auto salvage and junk yard in the area of Mason Street and Skenes Avenue has effectively blocked residential or industrial growth in the area. Measurements taken from aerial photographs show that the junk yard encompasses approximately twenty-five acres of level land.

From an aesthetic standpoint it is obvious that no one would care to invest in the development of land or buildings in this vicinity. While some portions of the junk yard are fenced, no attempt has been made to screen the area from public view. There is no possibility of moving the wrecked autos and other debris to another location. The enormous cost of such a project would preclude any effort along these lines. The junk yard is surrounded by sub-standard housing, and it is understandable why the homeowners do not seem to be possessed of pride of ownership. There appears to be little likelihood of improving the character of this section of South Henderson.

North Henderson (See Map 19)

The unincorporated area of North Henderson has many of the problems associated with South Henderson but to a lesser extent. The major traffic artery is U. S. 1 Business which supports most of the north-south local traffic. Through traffic utilizes U. S. 1 Bypass and Interstate 85. Land use bordering U. S. 1 Business is mixed but primarily of a commercial nature. Restaurants are numerous and include drive-ins, motel-restaurants and conventional restaurants. Several service stations are located along the highway and vary from tastefully landscaped, well designed stations, to lean-to garages with two gas pumps. Three motels are strategically placed to offer accommodations to the traveling public utilizing U. S. 1 and Interstate 85. A sawmill operation behind a builders supply store creates a minor problem for residences in the vicinity. The burning of sawdust creates smoke and the presence of stacked lumber is not an enviable view from the front windows of houses in the rear of the lumber yard. However, the lumber yard was probably in operation prior to the construction of homes in the area, and purchasers could not avoid noticing the prospective nuisance and hazard to their homes. Other land uses in the vicinity of U. S. 1 Business are an automobile dealer, mobile home sales, real estate office, monument sales, a concrete block manufacturing plant, fertilizer warehouse, and farm equipment sales. Residential development is concentrated in the northern extremity of U. S. 1 Business as indicated on the map. Further residential growth along the main highway in North Henderson is unlikely due to the high value of the land for commercial uses.

To the west of the highway there is a two block area of housing adjacent to the City of Henderson between U. S. 1 and Henderson Institute. Approximately one-half of these



housing units are in a deteriorating condition. The general condition of the area is poor due to the accumulation of litter and debris along the streets and in vacant lots. Further north, housing behind the motels is of a higher quality and in sound condition.

To the east of U. S. 1 Business, North Henderson is predominantly residential in character although the focal point for the area is a large textile mill. The original mill village has expanded north and south of the mill. Individual home ownership has changed the character of the area to some extent, but the recognizable characteristics of a typical North Carolina mill village are still present. While there is some sound housing the general character of the housing is not favorable. The great majority of the houses are of frame construction in need of painting and structural repair. It is estimated that few of the homes in this area would be marketable at \$10,000. There are some streets where home values do not exceed \$5,000 and where the structures are all either deteriorated or dilapidated.

The streets in North Henderson follow a more distinct gridiron pattern than in South Henderson, but many of them are unpaved and have insufficient rights-of-way. Yards fronting on many of the streets are of insufficient depth to provide homeowners with privacy and insulation from the noise and hazards of vehicular traffic. Other public facilities in North Henderson include "city" water, schools, and the Vance County Fire Department, which operates a manned station just east of U. S. 1 Business.

Between the eastern extent of residential development in North Henderson and U. S. 1 Bypass there is a large acreage of open land which will in time lose its present character as agricultural land.

CHAPTER 8

SUMMARY AND CONCLUSIONS

Location and Transportation

While Vance County is located along the northern edge of North Carolina, access to other parts of the state is provided by an excellent system of highways and railroads which pass through the county. U. S. 1 and I-85 insure quick access to population centers in the Eastern United States. U. S. 158 furnishes a link to the coastal area and connects with other major east-west highways. Rail service provided by the Seaboard Air Line and Southern Railroads guarantees rapid shipment of bulk commodities north and south and to the port of Norfolk for overseas destinations. The presence of railroads also insures delivery of bulk raw materials to industrial processors in Vance County. The N. W. Weldon Airport, when completed, will serve the needs of private and corporate aircraft as well as providing rapid accessibility to the Raleigh-Durham Airport by air taxi service. The missing link in the transportation network continues to be the current termination of I-85 at Henderson. Completion of this major traffic artery between Henderson and Durham will provide a safer and faster route between these two cities. Future location of this "missing link" will also open up land development possibilities for industrial and commercial growth in the vicinity of the highway.

Geology and Mineral Resources

The geological structure presents no serious problem for the industrial or residential developer. Underlying formations of granite provide a substantial base for large structures but recourse to blasting is necessitated where topsoils are shallow. In the field of mineral resources the

potential for tungsten production still exists, but substantial capital investment would be required to work available deposits. Crushed granite is being processed in the county, but substantial expansion does not appear to be imminent due to high transportation costs. Future completion of Interstate 85 will create increased demand for crushed granite during the construction period. A source of lightweight aggregate may be developed in the county, but extensive research would have to precede any possibility that parent material is present.

Water

Water resources in Vance County are more than adequate. Tributaries of the Roanoke and Tar Rivers provide an almost unlimited supply of raw water. The rivers also provide adequate drainageways for the county. In addition to high grade surface water, ground water supplies are adequate to meet existing and foreseeable demand. With the proposed raw water intake system from Kerr Reservoir the city and fringe areas of Henderson will have access to water supplies limited only by the size of the water treatment plant. For the foreseeable future water will be plentiful and cheap in Vance County.

Soils

The eight soil associations in Vance County comprise a wide range of uses and degrees of suitability for urban and rural purposes. In general there is ample land for agricultural purposes, the most frequent use of good soils being the production of tobacco. Some Vance County soils are subject to severe erosion due to topographic problems and good soil conservation practices are of paramount importance in these areas. Soil restrictions on urban development occur in areas where shrink-swell characteristics

and percolation rates create problems for homes dependent upon septic tank absorption fields for sewage disposal. Most Vance County soils present moderate to severe limitations for effective septic tank operation.

Electric Power, Natural Gas, and Telephone

Utilities pose no problem for industrial, commercial or residential development in Vance County. It is anticipated that the only significant development in the county will take place in Henderson township. The facilities of Carolina Power and Light Company and Carolina Telephone and Telegraph Company are adequate to meet expansion needs in the Henderson area for the foreseeable future. Public Service Gas Company has an eight inch high pressure natural gas line from Granville County to South Henderson. This line is expected to be able to serve industrial needs in the Henderson area for a ten year period. Smaller laterals can be extended to any point in the Henderson area should the need arise.

Agriculture

Vance County is essentially rural in character and agriculture is therefore an important contributor to the county's economy. As previously stated the most important field crop is, and will continue to be, tobacco. Other important field crops include cotton, soybeans, grain and hay. Potential for agricultural development exists in these crops plus horticultural crops such as cucumbers for which a large local market exists. Beef cattle production is currently limited to small scale operation, but constantly increasing demand, rising prices, and the availability of local markets indicate that expansion in this field can be expected and should be encouraged. Beef cattle production would also enable farmers to utilize idle land and areas of moderately steep topography for pasturage.

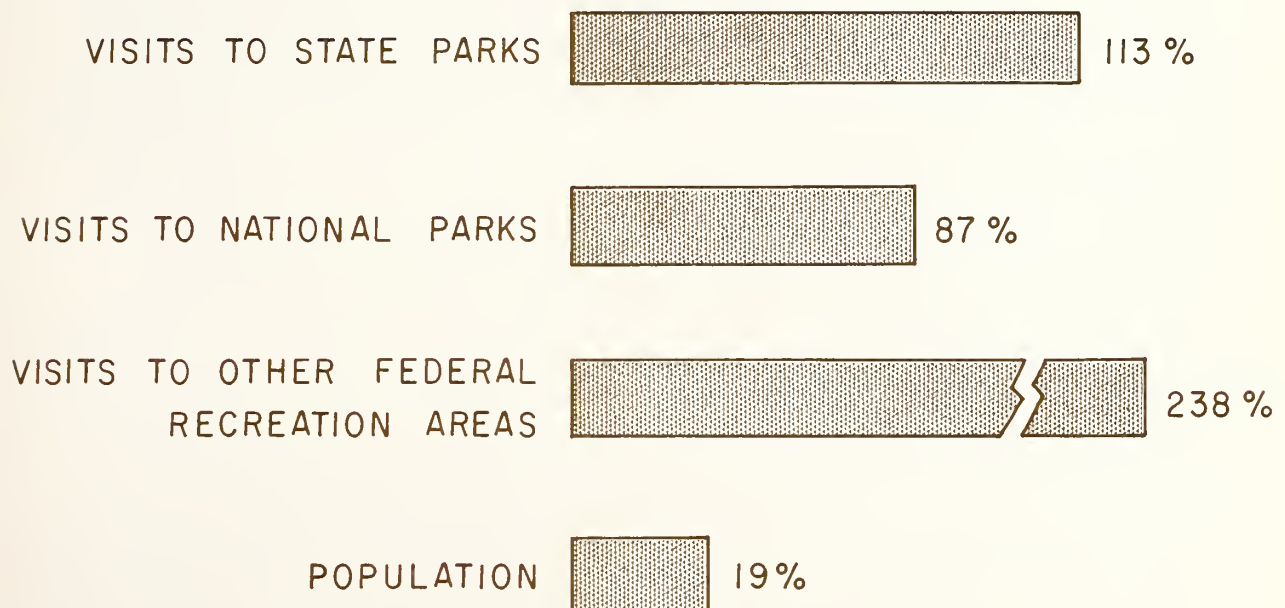
A trend toward declining farm population and fewer farms coupled with increasing acreage of remaining farms has been observed. This trend, abetted by mechanization, is expected to continue. The long range outlook is that agricultural areas will eventually utilize all currently idle and potential cropland. In the area adjacent to Henderson land currently in farms will gradually become urbanized due to anticipated population growth in that city.

Forestry

The woodlands of Vance County provide a potential for substantial economic growth. Most of the woodlands are in relatively small tract ownership which makes efficient forest management techniques difficult and somewhat expensive. Advice on forest management is available from the Division of Forestry, N. C. Department of Conservation and Development for small tract owners. Local markets are available for hardwoods and softwoods in Vance and surrounding counties. Land subject to severe erosion and not suitable for pasturage could be planted in pine seedlings for long range investment purposes.

KERR RESERVOIR

The potential for further expansion of recreational facilities is obvious to the most casual observer who has visited the Kerr Reservoir in the summer months. It is well recognized that demand for recreational activities is climbing rapidly nationwide. The Outdoor Recreation Resources Review Commission submitted a report to the President in 1963 outlining future needs for recreation in the United States, Figure 4, extracted from the report, shows the increasing uses of recreational areas during a ten year period.¹



INDICES OF DEMAND 1952 - 1962 PER CENT INCREASE OVER 1952

FIG. No. 4

¹Action for Outdoor Recreation For America, Citizens Committee for the Outdoor Recreation Resources Review Commission.

The Recreation Resources Review report also pointed out that water is a focal point of outdoor recreation.

"Wherever they live, most people seeking the outdoors look for water - to swim and fish in, to boat in, to walk, picnic and camp by, and just to look at. The demand for water based recreation is increasing more rapidly than the demand for outdoor recreation in general. Swimming, for example, appears likely to be the most popular outdoor activity by the end of the century."

The Corps of Engineers is authorized under provisions of the Flood Control Act of 1962 to construct, operate and maintain public park and recreation facilities at their water resource development projects. The Secretary of the Army is authorized to grant leases of lands to non-profit organizations for park or recreational purposes for nominal considerations. Preference is given to Federal, State or local government agencies.¹ This would seem to indicate that the Kerr Reservoir Development Commission as agent for the State of North Carolina could obtain further leases for developing recreation areas from the Corps of Engineers. State funds would have to be appropriated for the developing of new campsites, swimming areas, boat docks, etc. Expanding populations in urban areas of North Carolina and Virginia will continue to use Kerr Reservoir in ever increasing numbers and with greater frequency. Unless additional funds are appropriated for expanding the facilities of the Kerr Reservoir Development Commission, citizens of the regional areas visiting the North Carolina section of Kerr Reservoir will be faced with insufficient docking spaces, crowded swimming areas, and "no vacancy" signs at the entrance to camp sites.

¹Federal Assistance in Outdoor Recreation, U. S. Department of the Interior, 1966.

Potential for vacation home sites is present along the reservoir boundary. As previously noted, such development should be controlled so as to retain the scenic beauty of the shoreline. Carefully designed subdivisions with community sewerage and water systems could provide vacation retreats and summer homes for many people without cluttering the lakefront.

Potential for recreation-oriented commercial activities will occur adjacent to park areas as attendance increases at recreational areas. Existing general stores along roads leading to the lake currently attempt to meet the needs of visitors. It is anticipated that eventually stores will develop that cater exclusively to reservoir visitors. Care should be exercised that such development will not be of the "honky-tonk" variety with marginally constructed buildings, inadequate parking facilities, surrounded by a forest of advertising signs and billboards.

Residential

The 1960 Census of Housing listed 9,008 housing units in Vance County. Slightly more than 50 percent of these units were listed as being in substandard condition. Assuming an occupancy rate of 3.5 persons per dwelling unit, this would indicate that approximately 15,750 Vance County residents are living in homes that need substantial upgrading ranging from the installation of indoor plumbing to repair of sagging porches and leaky roofs. Depressed economic circumstances doubtless precludes the renovation of most of these homes. Within the next ten years many of these homes will be unfit for habitation. The more fortunate families will be able to move into sound structures, some will move into other substandard homes, and others will drift away from the county. The housing pattern is fairly typical of rural counties having a high nonwhite rural population.

Recent residential development has been slowed down due to a shortage of mortgage funds, but new housing over the past several years has been scattered rather than in subdivision clusters. It is anticipated that future construction will occur in the Henderson area rather than in the rural areas. This will be due to a desire to live relatively close to place of employment, a desire for city water and sewer facilities, access to schools and other socio-cultural facilities. The area west of the existing city limits of Henderson appears to be a logical and desirable location for future residential development and it possesses the potential for development. Topography, while steep in places, can be overcome by grading and sound subdivision layout. The city water distribution system already extends beyond the city limits to serve Maria Parham Hospital and a sewage treatment plant is located on the western side of Henderson. Access to Henderson is afforded by U. S. 158 and U. S. 158 Bypass.

Other tracts south of U. S. 158 and west of Bearpond are attractive, possess moderate topography, and are close to Henderson. Development of this area would have to depend on wells and septic tanks rather than on city water and sewerage systems. North of Henderson a moderate amount of residential construction will continue to develop along S. R. 1319 leading to Satterwhite Point. There is a good deal of level land along the road which provides quick access to Henderson. Further residential growth in North Henderson may be encouraged by the location of the new County High School on the Warrenton Road. Large tracts of fairly level land are available in this area.

It is unlikely that the towns of Middleburg and Kittrell will experience substantial residential growth. Lack of water and sewer facilities and distance from the employment and commercial center of Henderson will probably retard the growth of these communities. The same can be said of Williamsboro and Townsville, but the latter town does seem to possess a

greater population than its opportunities for employment would seem to indicate. This could be due in part to the community's proximity to Tungsten. Some former mine workers may have been elected to remain in Townsville while commuting to work in Henderson and Oxford.

The potentials for increased residential development in the unincorporated communities of North and South Henderson are difficult to assess. These areas are close to employment centers and for the most part have access to a municipal water system. They also contain topography suitable for residential development. Previous development has been haphazard and land uses in some areas have been incompatibly mixed. Street layout is uneven and existing streets are of varying width and surface conditions. Further development needs to be controlled with respect to subdivision design, zoning, and acceptances of rights-of-way. Failure to exert controls will inevitably result in extension of the existing type of development which threatens to destroy these areas as suitable residential neighborhoods.

The most inhibiting factor for residential development in rural areas is the ability of soil to support septic tank systems. Poor percolation and shrink-swell characteristics would preclude the possibility of anything other than low-density development. Reference to the generalized soils map (Map 7) and the soils interpretation chart (Table 2) will indicate those areas suitable for residential development utilizing septic tank filter fields. Additional potential for residential development exists in proximity to existing community sewerage systems.

In summation it is correct to say that large areas of the county possess potential for residential development based on such criteria as topography, ability to support septic tank systems, and access to major roads. However, past trends indicate that population in rural areas of Vance County will continue to decline. Residential growth

will occur close to Henderson due to factors previously discussed. The communities of Middleburg and Kittrell possess suitable topography and may in the future develop community water and sewer systems. Thus, the potential for residential development in these communities is greater than other rural areas. Distance from places of employment, lack of adequate school facilities in the immediate area and lack of commercial, cultural, and social centers reduce the potential for residential growth.

Commercial

Commercial activities in Vance County are centered in the Henderson area. Small general stores and service stations are to be found at all the small cross-roads communities. These establishments are the only commercial activities functioning outside the Henderson urban area with the exception of a few farm-centered stores such as feed and grain mills and implement repair garages. In view of the declining rural population the potential for development of commercial activity of this nature is very limited.

Highway commercial activities along the primary highway system will continue to develop in the Henderson area. Additional potential for highway commercial enterprises exists at interchange points along the projected route of Interstate 85. Theoretically, potential for highway commercial development exists along the length of all primary highways. In reality, development will occur only when profits can be reasonably anticipated. Commercial interests with large acreage requirements such as automobile and implement dealers increase potential for highway commercial development. Such enterprises in downtown locations may look favorably upon "fringe" locations when seeking to expand or relocate, but may insist upon the provision of public water and sewerage systems.

Consideration has been given to potential shopping center locations in the Henderson area. A shopping center is generally considered to be a group of stores planned, owned, controlled, and managed as a unit. General requisites for shopping center locations include:

1. A desirable trade area.
 - a. Neighborhood Shopping Center - trade area of 5,000 - 20,000.
 - b. Community Shopping Center - trade area of 15,000 - 100,000.
 - c. Regional Shopping Center - trade area of 100,000+.
2. A desirable parcel of land under single ownership and of an adaptable shape with no intervening roads or streets.
3. Surrounding road pattern must be able to support traffic generated by the shopping center.
4. Must be visible from major roads.
5. Surrounding areas should be protected from noises and nuisances created by the center.

In addition, the value to a shopping center location can be determined by an analysis of:

- A. Accessibility
- B. Possibility of traffic interception
- C. Prominence of location
- D. Character of the neighborhood
- E. Traffic volumes.¹

In the final analysis the location of a shopping center can only be selected through an estimate of business volume, indications of possibilities of growth, and a determination of freedom from competitive threat.²

¹Source: R. L. Nelson, Selection of Retail Locations, F. W. Dodge Corp., 1958.

²Ibid.

Industrial

In the past, land considered unsuitable for residential and commercial uses was usually designated as "suitable for industry". Time and experience has drastically changed the concept of what land should be considered as possessing industrial potential. Competition for industry by cities and counties has forced recognition of the fact that prime industrial land should meet criteria even more stringent than prime residential land. With few exceptions, industrial developers and residential developers vie for ownership of the same tracts of land. Since the demands placed by industry for land are generally rather stringent, acreage with industrial potential should be recognized at an early state and, if possible, held in reserve for future use by industry.

Industrial sites should not be located where their presence may have adverse effects upon surrounding land. Industrial plants may produce smoke, dust, noise, etc. and generate large volumes of traffic. These by-products would create problems for residences, schools, hospitals, and other land uses in the area. Communities must therefore be aware of problems that may occur as a result of industrial development as well as the benefits that may accrue.

The generally accepted criteria for industrial sites of sizable acreage include:

1. Reasonable and economical in cost
2. Attractive surroundings
3. Require minimum grading and clearing (maximum slope of 5 percent).
4. Zoned for protection from encroachment and for specified types of industry.
5. No objectionable easements
6. Good building foundation characteristics
7. Highway in front of property
8. Rail line or spur track in rear

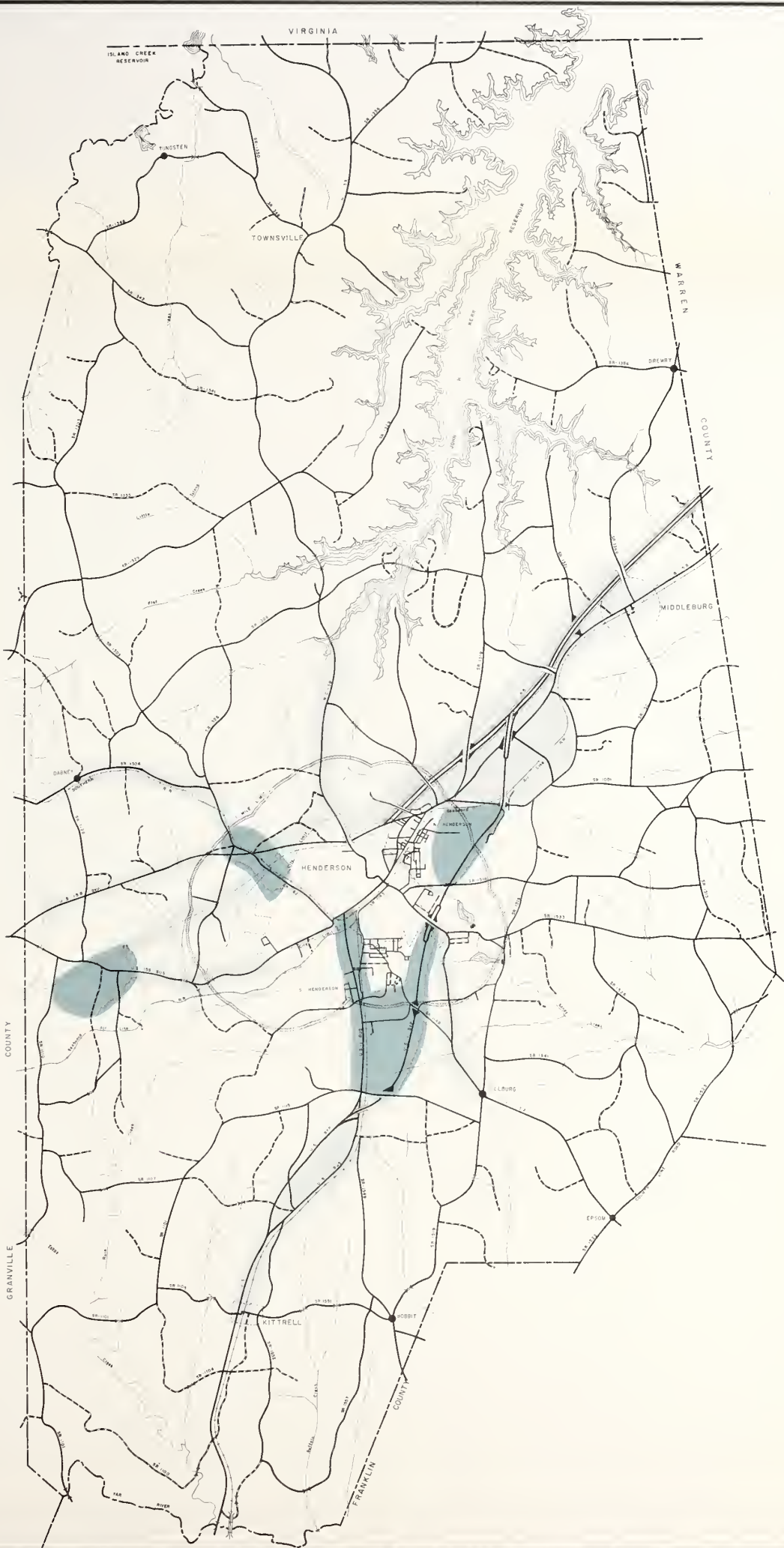
9. Water supply with adequate line pressure
10. Access to adequate sewer line
11. Adequate communication
12. Adequate natural gas supply
13. Accessibility to electric power¹

The criteria for industrial sites listed above is somewhat idealized. There are few areas that could meet all the requirements on the list. Much of the land area of Vance County is clearly unsuited for large scale industrial development by virtue of topography, absence of major highways, lack of water and service facilities, etc. Land with industrial potential is limited to a few areas in the vicinity of Henderson. Small manufacturing and distribution plants do not need and sometimes cannot afford to purchase land considered to be a prime industrial site. Acreage requirements are smaller, thus affording more areas where topography may not be a drawback. Rail sidings may not be required if the facility is going to rely on truck transportation. Some industries are guided in location factors by the degree of visibility from a major highway (sometimes termed "prestige" locations.)

Map 20 shows those areas in Vance County which possess potential for industrial development. Two types of potential are shown: 1) those areas with a high degree of potential based on the inter-relationship of such factors as soils, proximity to water and sewer systems, railroad tracks, proximity to population concentrations, major highways, etc.; 2) those areas which possess one or more of the attributes of an industrial site. In the case of the latter grouping, the industrial potential is not necessarily governed by the availability of sites. Hundreds of communities possess locations with similar attributes. The ability of Vance County to

¹Extracted from Bulletin No. IV, Plant Sites and Available Buildings, CEI Series, 1964-1965, N. C. Department of Conservation and Development, Division of Commerce and Industry.

encourage industry to locate in these areas must be accomplished by citing additional benefits such as recreation, labor supply, climate, and the promise of long range cooperation.



INDUSTRIAL POTENTIAL

MAP No 20

LEGEND



HIGH POTENTIAL



LOW TO MEDIUM
POTENTIAL

VANCE COUNTY NORTH CAROLINA

PREPARED BY
DIVISION OF COMMUNITY PLANNING
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A
FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE
DEPARTMENT OF HOUSING & URBAN DEVELOPMENT, UNDER THE URBAN
PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE
HOUSING ACT OF 1954, AS AMENDED

DATE 7/66

